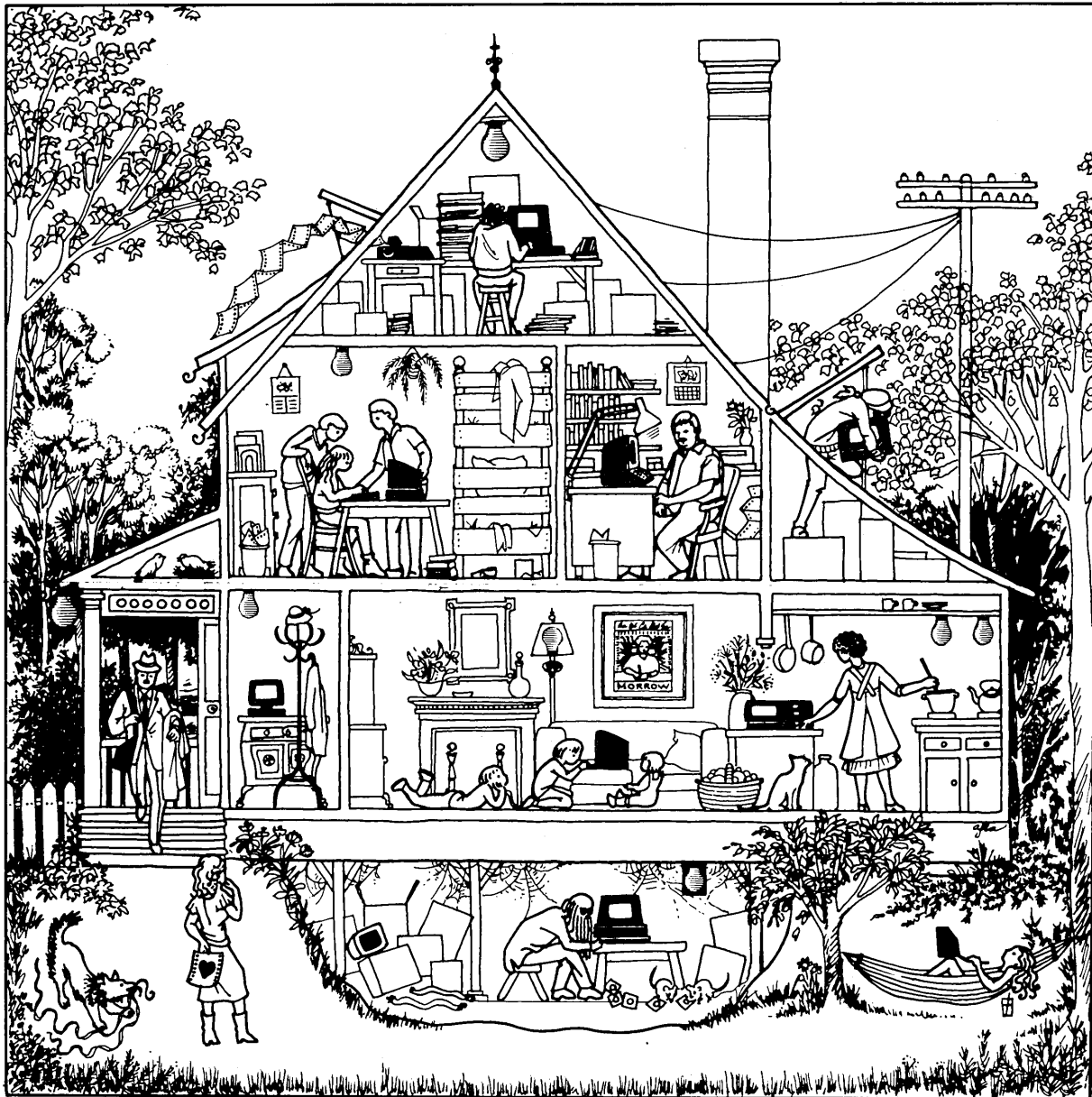


Morrow Owners' Review

VOLUME 2, NUMBER 1, FEBRUARY 1985



THE INTERNATIONAL MAGAZINE FOR USERS OF MORROW COMPUTERS
P.O. BOX 5487, BERKELEY, CA 94705 (415) 644-2638

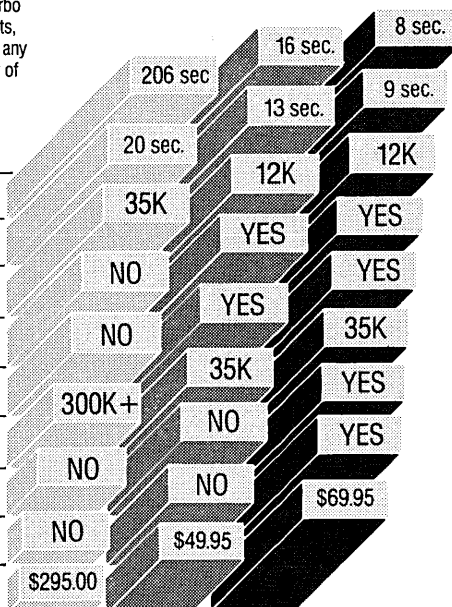
They said it couldn't be done. Borland Did It. Turbo Pascal 3.0

The industry standard

With more than 250,000 users worldwide Turbo Pascal is the industry's de facto standard. Turbo Pascal is praised by more engineers, hobbyists, students and professional programmers than any other development environment in the history of microcomputing. And yet, Turbo Pascal is simple and fun to use!

COMPILATION SPEED	206 sec.	16 sec.	8 sec.
EXECUTION SPEED	20 sec.	13 sec.	9 sec.
CODE SIZE	35K	12K	12K
BUILT-IN INTERACTIVE EDITOR	NO	YES	YES
ONE STEP COMPILE (NO LINKING NECESSARY)	NO	YES	YES
COMPILER SIZE	300K+	35K	YES
TURTLE GRAPHICS	NO	NO	YES
BCD OPTION	NO	\$49.95	\$69.95
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MS PASCAL TURBO 2.0 TURBO 3.0



The best just got better: Introducing Turbo Pascal 3.0

We just added a whole range of exciting new features to Turbo Pascal:

- First, the world's fastest Pascal compiler just got faster. Turbo Pascal 3.0 compiles twice as fast as Turbo Pascal 2.0! No kidding.
- Then, we totally rewrote the file I/O system, and we also now support I/O redirection.
- For the IBM PC versions, we've even added "turtle graphics" and full tree directory support.
- For all 16 Bit versions, we now offer two additional options: 8087 math coprocessor support for intensive calculations and Binary Coded Decimals (BCD) for business applications.
- And much much more.

The Critics' Choice

Jeff Duntemann, PC Magazine: "Language deal of the century . . . Turbo Pascal: It introduces a new programming environment and runs like magic."

Dave Garland, Popular Computing: "Most Pascal compilers barely fit on a disk, but Turbo Pascal packs an editor, compiler, linker, and run-time library into just 29K bytes of random-access memory."

Jerry Pournelle, BYTE: "What I think the computer industry is headed for: well documented, standard, plenty of good features, and a reasonable price."

Portability

Turbo Pascal is available today for most computers running PC DOS, MS DOS, CP/M 80 or CP/M 86. A XENIX version of Turbo Pascal will soon be announced, and before the end of the year, Turbo Pascal will be running on most 68000 based microcomputers.

An Offer you Can't Refuse

Until June 1st, 1985, you can get Turbo Pascal 3.0 for only \$69.95. Turbo Pascal 3.0, equipped with either the BCD or 8087 options, is available for an additional \$39.95 or Turbo Pascal 3.0 with both options for only \$124.95. As a matter of fact, if you own a 16 Bit computer and are serious about programming, you might as well get both options right away and save almost \$25.

Update policy

As always, our first commitment is to our customers. You built Borland and we will always honor your support.

So, to make your upgrade to the exciting new version of Turbo Pascal 3.0 easy, we will accept your original Turbo Pascal disk (in a bend-proof container) for a trade-in credit of \$39.95 and your Turbo87 original disk for \$59.95. This trade-in credit may only be applied toward the purchase of Turbo Pascal 3.0 and its additional BCD and 8087 options (trade-in offer is only valid directly through Borland and until June 1st, 1985).

(*) Benchmark run on an IBM PC using MS Pascal version 3.2 and the DOS linker version 2.6. The 179 line program used is the "Gauss-Seidel" program out of Alan R. Miller's book: *Pascal programs for scientists and engineers* (Sybex, page 128) with a 3 dimensional non-singular matrix and a relaxation coefficient of 1.0.

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... if you pay for it

SUBSCRIBE? Yes, indeed! The Morrow Owners' Review is going independent. Since our beginning, Morrow Inc. has paid the printing and mailing bill. This allowed us to distribute MOR to you free of charge, but now it's time to take off . . . so tighten your seatbelts.

Here's our Flight Plan: Free distribution of MOR will end with the April 1985 issue. Our first solo flight will be the June 1985 issue, mailed out only to paid subscribers. Tickets go for \$18/year, but if you get on board early, you pay \$3 less.

More than ever, the independent MOR will be *your* magazine, with new departments and features to respond to your needs. Beginners as well as technical wizards can count on MOR for continued quality in how-to articles, reviews, hot tips, tutorials—information you can't find elsewhere. Our columnists will answer those questions you're too embarrassed to ask at your local users group. And all this for less than a box of cheap floppies!

But it's going to take all of us to get this flight off the ground. Got the ticket?

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"My year is no longer divided into 12 MONTHs but 6 MORs!"
— Harry Barber

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NEWS FLASH!!
MOR Independence Day
January 28, 1985
Suddenly we foot
the bill ourselves.
SUBSCRIBE! NOW!

January 25, 1985

EDITORIAL

by Sypko Andreae

It must be a shock for all of you to open up your new issue of MOR and see a big subscription announcement on page 1--especially those of you who have been receiving MOR free for almost a year now. I'd like to fill you in on what's been happening--and some of what is going to happen.

Going independent is a major step for MOR--one that is both exciting and challenging. Although Morrow, Inc. subsidized MOR from its beginnings in April 1984, MOR has always been a magazine for and by Morrow users. We have prided ourselves on our successful grass-roots labor of love. How will independence affect this?

Conversion to independence is a long and arduous process. I have been staying in touch with the Editorial Council, a group of about ten volunteers around the country who have been enormously helpful in making many decisions. I'd like to fill you in on some of our thoughts and considerations.

Here's the story: MOR could not have started or continued without the initial support of Morrow, Inc. They paid about 60% of our expenses; the rest was covered by MOR soliciting advertising revenue. While we had an agreement about editorial independence... well, you just don't bite the hand that feeds you. And, in fact, we had little reason to even think of doing so. Morrow Inc. and MOR have had a mutually-supportive working relationship all along. With Ed Niehaus as our skilled go-between, the few differences of opinion about editorial content were amicably settled in our favor.

Our intention right from the beginning was to eventually make MOR an independent publication. In past issues, letters to the editor have reflected the feelings of readers about this, and a running discussion has been going on with the Editorial Council and on Friday night's CompuServe Conferences. However, we weren't sure when and how we could manage that shift. We certainly did not want to do it too soon. And then, before we knew it, it was no longer a matter of choice but of necessity. Morrow felt it was time to wean us. Once faced with that fact, we decided it might be the right time anyway for us to execute our original plans for independence.

So, here we are, folks! One more free issue in April, and then in June we will come out with our first subscription issue. There are definitely risks involved. First of all, it just seems logical that our circulation will drop initially. The major ramification of this is that our advertising revenue may also fall, since we can no longer assure our advertisers that they will reach 20,000 people with each issue. If ad revenue will still support about 40% of our costs,

the other 60% has to come from subscriptions. To cover expenses for the first year, calculations show that we will need at least 6000 subscribers at the \$15/\$18 subscription fee.

We debated the cost of the subscription for a long time. The main consideration has been to charge an amount to include as many people as possible while at the same time being able to pay staff wages and the bills. All we need is to break even. We don't need to make a profit. Any money left over will be ploughed right back into MOR to enhance quality, size or frequency.

Now let's look at MOR's situation in the short run. Morrow has partially supported this February issue; we have also made an arrangement with them to use their mailing list for rental purposes. This will help, but it's not enough to get us to the first subscription issue in June. In effect, MOR is close to being totally on its own. So, we all need to pull together to make this work. If we don't...no more MOR!

This is what you can do to help between now and June. Send in your subscription early. If you pay before April 15, you'll get a discount (see the ad on page 1)--and we'll have funds! Another thing you could do is find new advertisers worthy of exposure in MOR. It takes a concerted effort to make a display ad sale. In return MOR will give you a one-year subscription mailed first class for each full-page ad sold.

Or...write a splendid article! From now on, we will compensate published authors with a year's subscription (first class mail). We would really like to pay authors, and perhaps in the future we can--although I suspect it will never be what you might receive from the slick publications.

And, while I am on the subject of free subscriptions, all you generous Stapler-Members, T-Square Supporters, Light-Box Sponsors and Answering Machine Sustainers--you will of course get your one year's free subscription, too. Your generous donations were essential way back when, and we haven't forgotten.

As for the thousands of you we hope will fill our subscription rosters . . . just remember the dreary pre-MOR days of fruitless phone calls and depressing manuals. Imagine life without MOR!

To conclude, I think we can assure you that the quality of MOR will not only continue to improve, as those of you who have been with us for a while have noticed, but that MOR will be even more able to respond to users' needs. So, let's all make MOR an on-going success.

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Morrow Owners' Review

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Tim Evans, Brian Leyton, Ted Silveira, Erik Westgard, Stan Young, Art Zemon

DEADLINE FOR DISPLAY AND CLASSIFIED AD COPY
For April 85 issue: Friday, March 1, 1985, noon
For June 85 issue: Friday, May 3, 1985, noon
For August 85 issue: Friday, July 5, 1985, noon

WRITERS GUIDELINES: Written contributions of more than 30 words should be submitted in a WordStar file; right margin at 55 (^OR = 55); right justification OFF (^OJ); two spaces after the period (end of sentence); one blank line between paragraphs; three spaces indentation at the beginning of each paragraph. Thank you! Preferred file transfer: Upload to BAMDUA RBBS, (415) 654-3882. You may also use MCI Mail: MREVIEW (ID 217-1566) or mail a 5 1/4" Morrow format floppy with a printed hardcopy of your prose. If you enclose postage, your floppy will be returned within a month.

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For information on DISPLAY ADS, write to MOR, P.O. Box 5487, Berkeley, CA 94705, and ask for rate schedule and information sheets.

SPECIAL CREDITS

Front cover	-- A. Lucas-Andreae
Cartoons on pages 9,19,30	-- Robert Johnson
Morrow Liaison	-- John Seamster

Micro Cornucopia

The Single Board Systems Journal

MORROW USERS DISKS



Micro Cornucopia is drawing rave reviews as the technical journal with style, but Micro C, as we like to call it, is more than just a magazine.

Micro C is also a central exchange of software that people have written or modified for their systems and from these contributions we have put together the following Morrow disks (186K format).

Morrow Users Disks

\$12⁰⁰ each

The following are full disks of software assembled specifically for the Morrow.
Each program has a .DOC (documentation) file and many come with source.

Morrow Disk M1 Modem software

This disk is absolutely priceless if you will be using a modem to communicate with bulletin boards, other micros or mainframes.
MMODEM: Morrow version of MODEM 795. You can change your baud rate inside the program. Includes source and library so you can customize it if you wish.
S.MODEM: This is MODEM7 setup for SMART-MODEM compatible modems. Handles autodial and autoanswer.
SQ/USQ: Programs to squeeze and unsqueeze files for faster transfer.

Morrow Disk M2 Utilities

Really oodles of spiffy little (and big) programs to help you get full use of your Morrow.
ZESOURCE.COM: A true Zilog format disassembler for 8080 and Z80 object(.COM) files. Now you can turn .COM files into .MAC files.
UNERA.COM: Simply enter "UNERA" followed by the name of the file you just erased and presto, the erased file is back! A lifesaver.
FINDBD54.COM: Checks an entire disk, reports bad sectors, and then creates a special file containing those sectors. You save a bundle on disks.
CAT2: This is a group of programs which create and maintain a single directory of all the programs you have on all your disks. Even keeps track of which programs are backed up and which aren't.
DUMPX, DU-77, COMPARE, FORMFEED, DIR-DUMP, ... and all have documentation on disk.

Morrow Disk M3 Games

PACMAN.COM: Despite the Morrow's lack of graphics, this one looks and plays amazingly like the real thing! Keep it hidden.
ZCHESS.COM: Chess with a 1-6 level look ahead.
OTHELLO.COM: You learn it in minutes, master it in years.
BIO.COM: Generates custom graphic biorhythm.
MM.COM: Master Mind.
WUMPUS.COM: Classic wumpus hunting.
ADVENTURE.COM: This is the famous 550 point super version of Adventure. There isn't room on one disk for this program and all the data files (the cave is huge) so the data files are on Disk M4.

Morrow Disk M4 Adventure Data & Aliens

ADVT.DAT: This disk contains the data files for the 550 point Adventure (the latest, greatest, most cussed version ever devised by half-mortals). You must have both M3 and M4 to play Adventure.
ALIENS: This is the game that made arcades famous. Keep this one hidden from the younger set or you won't get to play Adventure.

Morrow Disk M5 MX-80 Graphics

A complete Epson MX-80 graphics printer package including example files. Same as M6 except for MX-80 (or compatible) printers.

Morrow Disk M6 Prowriter Graphics

This is a complete Prowriter printer graphics package written by the same Micro C subscriber who wrote the MX-80 graphics package. Plot points, lines, circles, boxes, and more. Examples, documentation, and more.

Morrow Disk M7 Small C Version 2 Compiler

This is a greatly extended version of Ron Cain's Small C compiler. Version 2 has more expressions and larger library, true subset of Unix C. Disk contains compiler, documentation, and library —everything you need.

Morrow Disk M8 Small C Version 2 Source

This disk contains the source (written in Small C) of the Small C version 2 compiler. Get M8 if you want to try extending the compiler. (You must have M7.)

Morrow Disk M9 ZCPR

ZCPR: The big news on this disk is the self-installing version ZCPR available only from Micro C. Once you have ZCPR in your CP/M, you'll never go back to straight CP/M! For instance, ZCPR searches drive A for any program not found on drive B, so, even an empty disk in drive B appears to contain every program on A. It's great for text editors, compilers, etc. Plus many more new features to make CP/M easier to live with. In fact, Digital Research incorporated many features of ZCPR into CP/M 3.0.
EX14: a super replacement for SUBMIT.

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(503) 382-8048

Morrow Disk M10 Assemblers

We've received a lot of requests for a Z80 assembler. So Dana put in some long hours getting the Crowe Z80 assembler to run on the Morrow (and every other Z80 machine).
CROWECPM: This is a first class Z80 assembler. We use this assembler daily (and we included its source). Takes standard Zilog mnemonics.
LASM: This is a more powerful version of the ASM assembler you received with the Morrow. This will link multiple programs together at assembly time.
PRINTPRN: This program makes it easy to print the listing files generated by the Crowe assembler.

**Morrow Disk M11
Library & Checkbook Programs**
CHECKS: This has been a very popular group of programs. Categorizes checks so you can keep track which are tax deductible and which get charged to which projects. Includes source and excellent example check files. Very powerful.
LIBR: This is a complete set of library routines which let you group files into a single file called a library. Then CP/M sees them as a single program, but with the library routines, you can list them out separately, run them separately, or divide them up again. Almost like a unix environment.

Morrow Disk M12 Pascal Compiler

This is a real Pascal compiler. It supports only a subset of the language (no records, pointers, booleans, reals or complex) but it generates a real .COM file. Everything is on this disk: the compiler, its source, example programs and documentation.

Morrow Disk M13 Z80 Tools

This is for those of you who are into Z80 assembly language.
XLATE.COM: A very good 8080 to Z80 translation routine.
DASM.COM: An easier to use version of ZDSOURCE (the Z80 disassembler). This full disk includes source and documentation for both routines.

NEW! **Morrow Disk M14
Z80 Macro Assembler**
This is a real Z80 macro assembler! Syntax closely follows RMACK and MAC. Also includes pseudo-ops to support conditional assembly, etc. No phase or relocatable code.

LETTERS TO THE EDITOR

INDEPENDENCE OR BUST

Dear Editor:

Re: costs policy: By all means continue to accept Morrow's support as long as it is available until you can assure yourself that a subscription charge would not seriously reduce your readership. There is of course an advantage to independence and separation--you can offer constructive criticism of Morrow more freely when it is indicated. So far there's been very little cause that I know of.

Lawrence J. Marks, Falls Church, VA

Dear Editor:

I can't thank you enough for publishing the MOR. When the first 3 back issues arrived about six weeks ago, I sat up all night reading them cover to cover.

The Morrow Owners' Review is a very valuable publication. It has cleared up lots of puzzles for me, and made the use of my Morrow much easier and more enjoyable. I'd be glad to pay a mailing charge, even a modest subscription charge. Just don't stop publishing MOR!

Evalyn F. Segal, San Diego, CA

Dear Editor:

It seems to me that a publication truly independent of Morrow would be ideal, but I would rather have this than nothing. So please don't go bust trying to go independent!

Walter Eric Pond, Philadelphia, PA

[Well, ready or not: Here we go! Subscriptions from here on out, starting with our June issue. (See the Editorial in this issue as well as the announcement on page 1 for more information.) We hope you join us. We need at least 6000 of you to break even. --Ed.]

MONTHLY?

Dear Editor:

It is obvious that you are over-worked and understaffed. Nevertheless, I am grateful that you have taken your own time to put together a newsletter for Morrow owners.

Morrow Owners' Review has served three purposes for me: it has given me a "peer" group with which to communicate; it has given me a source of help --and perhaps a way by which I may help others, should anyone

have some of the same problems that I have had; and it has made available a marketplace comprised of those who provide products and services which support the Morrow equipment.

You will find my personal check enclosed. The amount in excess of the \$6.00 required for the back issues is an attempt to encourage the return to a monthly issue of the Morrow Owners' Review.

F.W. Harland, Wichita, KS

[MOR was never a monthly publication, but a bi-monthly right from the beginning (April 1984). But who knows what's going to happen. Subscribe and see....]

UNTRAMMELED EXERCISE

Dear Editor:

MOR should not come out in hard-copy form. It should be on a bulletin board. Members/Subscribers should be able to place material (with space and time limitations) on the board without editorial intervention. The computer holds the promise of realizing Democratic ideals, including the absolute untrammelled exercise of the right of free speech.

Donald W. Ricketts, Los Angeles, CA

[There are lots of Electronic Bulletin Boards where you can do just what you propose. But having to plough through all the untrammelled information in search of the few gems could easily cause you info-indigestion, the disease of the computer age. MOR is in the business of refining information. We work hard to cultivate writers, select, correct and clarify the GigaBytes of information that flow our way. It is called editing.]

ADVERTORIALS

Dear Editor:

You want to know what I think of articles by advertisers? All right: They stink. They cheat readers. They invite legal trouble. They eat up large chunks of editors' time. As you pointed out, the two "advertorial" pieces in the August 1984 issue weren't reviews. They were blatant puff pieces. Loss of credibility is hard to measure, and the damage is hard to repair. Legally, you are out on a limb. Editors are supposed to treat all advertisers exactly alike, and that's usually expressed in terms of selling everyone the same space for the same price. A free article is extra space. We all know that neighborhood and suburban

shoppers often get away with advertorials. We also know what they're worth to their readers. The Morrow Owners' Review deserves better.

Wendell Cochran, Arlington, VA

[You're dead right! Never again! --Ed.]

MORROWTORIALS

Dear Editor:

In response to some of your critics about using articles written by Morrow personnel, I would like to add my opinion. I feel that worthwhile, reliable information should be made available to your readership, regardless of the source. Some of the most valuable information that I have gotten from MOR has come from David Block's column.

Ray Andrews, Vincennes, IN

CALL A TRANSTAR A TRANSTAR!

Dear Editor:

It works! Steve Torrence's piece on concurrent printing with WordStar is the best thing that has happened to me since I bought my MD3. It has increased my productivity at least 50%. My MP200 is chattering away merrily in the background as I type this. Fantastic!

BUT...it ain't no piece of cake and you might hear from some slightly overheated readers about the various places that can and, Murphy assures us, will screw up. First, there is the MP200 Transtar. After learning that all MDs are not created alike, I was reluctant to blast right in until the folks at Binary Magic in Satellite Beach assured me that the Silver-Reed 550 was the same machine. It would really help to give equivalents or differences where Morrow equipment is concerned in articles of this type.

John R. Riegenbach, Melbourne Village, FL

LOST IN SACRAMENTO

Dear Editor:

The September '84 FOGHORN (Osborne Users' Group publication) said that the Morrow Owners' Review is available to us "free for the time being." I joined the First Osborne Group as a last choice since I couldn't find a Morrow group to join. I would certainly appreciate getting the MOR and would, of course, prefer to belong to a Morrow users' group instead of FOG. The FOG people are active, but they talk about Osborne too much for a Morrow owner.

Dennis M. Debacker, Sacramento, CA

[Sacramento? But that is the hometown of one of the most flourishing MUG's in the country! Regular

meetings, a wonderful newsletter, library, classes, the works. A call to Milton Levison at (916)421-6268 will get you home. And as long as MOR is free, you are on our mailing list. Want to subscribe? (See p. 1.)

WHEN LIGHTNING STRIKES

Dear Editor:

In regard to Jerry Sheperd's article, page 27 of the October 1984 issue (Vol. I, #4):

IF lightning is a major problem in your area, the "cheap" surge protectors will NOT stop lightning induced surges. The protection is relative to the price. Experience April-October in this area where I live, with Informer terminals and a DEC PDP: lightning induced spikes went "through" cheap so-called surge protectors, circuit breakers and fuses, and burned out the 1488 and 1489 every time. These are high-current driver chips and cannot take even a slight voltage increase. Finally found a six-outlet "line conditioner-stabilizer" for \$175.00 rated at 800 watts which worked on the terminals. Thirty and eighty dollar units are okay for local, machine-induced spikes, but NOT lightning!

Robert E. Wallace, Stuart, FL

UNTRAMMELED PRAISE

Dear Editor:

After reading four issues of the Morrow Owners' Review, and noting so many who report difficulty in learning to operate the Morrow and to understand the manuals, I'd like to give you my viewpoint.

My Morrow MD 11 arrived on October 19, 1984. I had never operated a computer before, and so knew less than nothing about one. But I found the manuals exceptionally easy to master, and within a week or 10 days felt very confident (a great change from the first day when I scanned the manuals and the operating instructions!) and forthwith started using it for my purpose: I am a writer. I thought the NewWord manual was a gem of easily followed instructions and cannot compliment the authors enough. I did find the Personal Pearl inadequate for my needs in indexing, but upon obtaining a dBase II, this solved my problems, and I even found that manual easy to follow. I am very much in love with the Morrow, and the menu-driven programs make it as much my right hand as was my typewriter before.

And contrary to what many have found, I cannot give enough praise to my dealer (Tom Nolan, Professional Computer Applications, Louisville, KY). His interest has never ceased. He called me long distance at least once a week during the initial period to see if I had any problems or questions, and was available day or night when I needed him. This is one dealer that the Morrow company can well be proud of for his support!

Michael L. Cook, Evansville, IN

TEACHING WITH PILOT

by Erik Westgard

Education is the great hope for personal computers. Once the checkbook has been balanced, the recipes have been filed, and the electronic mail has been sorted, your computer is free to become a private tutor. While commercial packages are available for math, spelling, history and other topics, what if you need to cover an area of instruction in your home or business that doesn't have educational software (courseware) already available? You might try writing your own.

Developing courseware is cumbersome with most programming tools. Courses usually consist of lessons followed by quiz questions designed to reinforce learning. The programmed lesson text can turn out to be lengthy, filling several screens (30 or 40 lines) per main point. For those who have programmed in BASIC, for instance, each section could require forty line numbers, PRINT statements, (or question marks) and opening and closing quotes. Once we got through programming the text, the section asking for student input would require INPUT statements, IF-THEN statements, variables, and complex matching logic.

But what if we just want to teach and not have to get involved in programming? The language PILOT (Programmed Inquiry, Learning, or Teaching) was designed in the early 1970's at the University of California at San Francisco for the express purpose of allowing teachers to easily develop their own lessons to be run on a classroom computer. PILOT is easy to use and does not require any background in formal programming. [The PILOT User's Guide, describing the language, was shipped with each new machine. If you missed it, they're available from Morrow. --Ed.]

PILOT "lessons" (not called programs) can be written with a text editor like WordStar or NewWord in non-text mode. To start, I format a blank diskette and copy onto it the PILOT.COM file from my distribution disk. I put that in drive B:, my WordStar disk in A:, and then use the L command to change my logged drive to B:. Now I write my lessons, save them, and just type PILOT FILENAME to run the lesson I have written. When the lesson ends, I get the prompt to hit a key, and

What does a lesson look like? With this question we move rapidly from programming to the realm of education. Tom Conolon's book PILOT--The Language and How to Use It (Prentice-Hall International, 1984) has a good introduction to lesson plans and structured lesson development. It is probably advisable to write out in advance your course objectives, intended audience, the time frame of the lesson, and any supplemental materials needed. After you've selected a topic and sketched out a lesson plan, coding the lesson is easy.

The lesson will consist of a number of individual screens presented to the student. For example, your lesson might begin like this:

```
*TOP
CLRS:
LF: 4
T: Welcome to a course in travel expense
T: accounts. Here at the XYZ Company,
T: the proper use of company funds is an
T: important goal, as well as a condition of
T: employment.
```

The notation "*TOP" designates the beginning of a given lesson. Functions, such as "CLRS:" to clear the screen and "LF:" to skip lines, are well documented in the PILOT manual. All PILOT instructions and functions end with a colon or use the colon to divide the instruction from the following data. You will notice that PILOT statements, such as "T:", do not require quotes or line numbers, so one can key lessons rapidly.

To reinforce the learning process, most lessons will ask some questions at the end and provide a way to check the answers. Questions are presented with the instruction "A:" to ask, and answers are checked against the instruction "M:" to match. Matching can be done against one possible answer or several, with commas separating the possible right answers. (Matching is not case-sensitive, so we do not have to worry if a student answers "yes" instead of "YES.") One can provide feedback to the student with the "TY:" or "TN:" instructions. At TY: you can type in a line, such as "Correct" on a match. At TN: you can type in something like, "Sorry, try again," for a wrong answer. Your next screen of instruction might look like this:

```
CLRS:
LF: 4
T: Any single expense item over $$25 requires a
T: receipt. This is both company policy, and
T: an IRS tax regulation.
T:
T: If you had breakfast for $$9.50 and dinner for
T: $$18.95 on the same day, would you need a
T: receipt?
A:
M: NO
TY: Correct.
TN: No. Neither item is over $$25 by itself.
T:
T: >>>
HOLD:
```

Dollar and pound signs have a special function ("reserved" characters) in PILOT, so you need to use

Dollar and pound signs have a special function ("reserved" characters) in PILOT, so you need to use two of them together in a T: statement for them to appear on the screen. The "HOLD:" instruction keeps a screen visible long enough for the student to study it. Put a symbol at the bottom of the screen as a signal to hit the return key to continue the lesson.

One of the advantages of computer aided instruction is that each individual student may review sections of the material as often as needed. For instance, you can put a question in a lesson that allows a branch backwards for review. Or you can program an automatic branch backwards if the student misses answers to questions about a section. You might want to end a section with an option to review, such as:

CLRS:

LF: 4

T: We have just completed the section on
T: filling out the expense form correctly.

T:

T: Would you like to review the work just
T: completed?

A:

M: YES

JY: *TOP

(example, cont.)

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TN: Okay. Press return for the next section.

T: >>>

HOLD:

In this example, "JY" returns the student to the beginning of the lesson. Thus, the student can jump to different sections, according to whether the match (M:) is yes or no. You could also label each section of the lesson, so that the student could choose to jump to any particular part--perhaps choosing from a main menu you program in.

If you wish to jump to a section and then return, PILOT provides a re-usable segment similar to a subroutine in programming. You can set up such a segment by beginning with a label (labels start with an asterisk and are usually up to six characters long), and ending with a subroutine statement, "E:". Place a use statement, "U:", in the lesson where you wish to run the subroutine. An example of a subroutine is:

*CLEAR

R: This subroutine clears the screen and moves

R: the cursor down four lines.

CLRS:

LF: 4

E:

The remark statement, "R:", allows the inclusion of comments in the body of the lesson to aid in revision, debugging, etc. These comments will not be displayed at the time the lesson is run. To execute correctly, all PILOT lessons should have an "END:" statement as the last line in the lesson.

For more advanced applications, PILOT offers a math function, "C:", to allow addition and subtraction within the lesson. One can access the printer with the "PR:" function, output ports with the "OUT:" function, and run CP/M programs with the "CP/M:" function. Short utilities and menus could be written in PILOT, like the menus included on the CP/M distribution disk. Here's one example:

*TOP

R: A Printer Test Program in PILOT

T: PILOT Printer Test. Ready printer,

T: then press enter.

HOLD:

T:

PR: YOUR PRINTER WORKS CORRECTLY

T: The message

T: YOUR PRINTER WORKS CORRECTLY

T: should have printed.

T:

T: Another try? (Y or N)

A:

M: Y

JY: *TOP

END:

There are countless other uses for PILOT. How about making educational programs for your kids at home? Or quiz games for your parties? Try it! ■



DAVID'S Q & A COLUMN

by David Block, Morrow Inc.

[Dave Block is Product Manager for Morrow, Inc. If you have technical problems or questions on application software, send them to him c/o MOR.]

Well, I seem to be suffering from foot-in-mouth disease. Last issue, I went out on a limb and suggested that you call the Morrow BBS. I went on to describe all the wonderful functions added to it, including file transfer. Well, guess what? The phone line has been down, and the file transfer functions have not been added. We are waiting for the phone line to be fixed, so you'll just have to keep trying.

Every time I sit down to write this column I feel like I must write reams of poetic prose before getting to the questions. This month, I'll skip it....

Eddye Eubanks of Austin, Texas writes to ask if those disk-drive analysis kits on the market for Apple and IBM computers work, and if any similar item is available for the MD2 or MD3.

Well, Eddye, no such kit is available for the MD series computers. If there were, I couldn't recommend it either (such honesty!). The most important purchase for the disk drives of your MD is a head cleaning kit. If you are worried about disk drives being out of alignment, it should be checked by a

service dealer. Dirty heads are much more common than misalignment of disk drives.

Roger Gledhill, an obviously satisfied Morrow owner from Ypsilanti, Michigan wants to know how to take one of his MD2s and his MD11 and add the two drives from his MD2 to his MD11 so that he may have 3 floppies on his MD11.

Roger, I have one question for you--Why? Adding two single-sided drives to the MD11 would not significantly increase the storage. The MD11 can only support one additional floppy anyway, and adding it is not a process that is easily done. If you write to me and promise to write an article about it for MOR, I can help you through the process.

Laurence Moore, Jr. of Gualala, California read my column in MOR, Vol. I, Issue 4 about SmartKey and went looking for it on his MBASIC disk, but couldn't find it. He wants to know if it's hidden, or if it's a defective disk.

Well, Laurence, SmartKey was not always included with the MD. You probably bought your Micro Decision before we had rights to distribute it. That being the case, you'll have to buy it from your dealer.

Bill Harrell of Utica, New York is having a problem with MBASIC when he has two random files open for writing. Every time he does a PUT to the second file, it doesn't advance to the next record, so the data gets written over the same part of the file, replacing the data from the previous PUT command.

I never used Random files under MBASIC, so all I can suggest is that you be sure you are 'PUTting' to the right file. Perhaps there is someone out there who has seen this problem before. If so, they can send the solution to Stan Ahalt's "Mailbox" column or submit it to MOR as a "Hot Tip." Otherwise Bill, try TURBO PASCAL--it's easy, fast, cheap, and reliable.

Until next issue...HAPPY COMPUTING!

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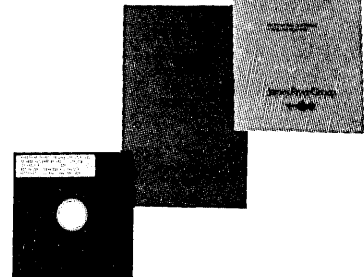
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MISCELLANEOUS ANNOUNCEMENTS

NEW USER GROUPS.

Morrow owners in the Boston/Cambridge Area can contact me about starting a local users group. I was a co-founder of the Boston Computer Society. I use Turbo Pascal and microMUMPS for various programming projects, and can provide assistance to people having questions about them. --Richard Gardner, Box 134 Harvard Square, Cambridge, MA 02238-0134; (617)876-2789; Telex: 853012

The Beverly Hills Morrow Users Group meets at the home of B. Ennis. Demonstrations and exchanges of software. For more information, contact Bob Brooks; days (213)276-0676, eves (213) 659-7194. Usually meets second Wednesdays.

THANK YOU, EMMA.

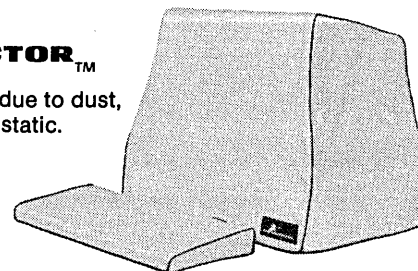
Emma Paquin recently resigned as an associate editor of MOR. She was one of the original crew that started MOR and did a lot of copy editing for those first issues. We lost count of the number of floppies we sent back and forth, but there were many. One day last summer she came all the way to Berkeley from her home in Arcadia, just to help out in the MOR office. Thanks for helping us get started, Emma.

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TROUBLE-SHOOTING YOUR MORROW TERMINAL

by Blake Handler

[The following tips, from the head of Technical Support for Priority One Electronics in Chatsworth, California, were first distributed at a users group meeting and then published in Emma Paquin's Morrow Owners Digest. When Emma submitted this material, she included a couple of additional recommendations from Blake: 1) If you have to open up and get into your Morrow, put it on a solid-colored towel before you remove the 4 Phillips screws on the front (plus the two on the back for the old models). This makes it easy to find the screws when you drop them. 2) If you do make any changes, be sure to write them down so you can undo them if necessary.]

PROBLEM 1) The terminal does not work.

- A) Make sure it passes the self test. (Your MDT 50 should beep twice.) Watch the screen for verification right after you turn the power on. If it does not pass the self test, go to step D.
- B) Check the terminal's SET-UP.
- b1) On the MDT 20, the SET-UP key is used to activate the 25th status line. Using the left and right arrows to move back and forth, and the up arrow to toggle 0 or 1, arrange the SET-UP as follows:

STATUS 1100 0100 0011 0110 0011 0000 1100 0010 0010 BAUD = 9600

- b2) On the MDT 50 the DIP switches should be set on the back as follows:

x x x x x	x x x x x x x x x x	x x x x x x x x	ON
1 2 3 4 5 6 7 8 9 10	1 2 3 4 5 6 7 8 9 10	1 2 3 4 5 6 7 8	OFF

- b3) On the MDT 60 when the DIP switches are in the ON position, they appear to be pushed in. On the MDT 60 or MDT 70, the SET-UP is as follows:

x x x x x	ON
1 2 3 4 5 6 7 8	OFF

- C) Check to see if the cable is plugged into the correct port. First, check to see if the cable is plugged into the Morrow port labeled TERMINAL. Then, check to see if it is plugged into the correct port on the

terminal. SIDE NOTE: Try swapping the terminal cable with your printer cable, (if it's a serial printer), in case they've gotten mixed up.

- c1) The MDT 20's port is labeled RS232C.
- c2) The MDT 50's port is labeled MAIN PORT.
- c3) The MDT 60 and MDT 70 have only one port. Enough said?
- D) I know this sounds dumb, but IS THE TERMINAL PLUGGED IN?
- E) Is the brightness turned up?
- F) UNPLUG YOUR TERMINAL! Check the fuse on the back of your MDT 50, MDT 60 or MDT 70. (Sorry, the MDT 20's fuse is internal.)
- G) If you are at this step, you will need to open the unit. WARNING! Before opening the terminal, leave it turned OFF and UN-PLUGGED for no less than 24 hours. When open, check to see if all the cables are correctly plugged in (wiggle them around a little) and that all chips are well-seated in their sockets. (Push down on all the chips you see.) You will also notice that the terminal has some fuses inside. Check these as well.
- g1) The MDT 20 has a board that plugs into the back of the CRT (cathode ray tube, or picture tube). Push this board in as well.
- H) Reassemble your terminal and try again.
- I) If the unit is still not working, you've done all that you can. Remember to tell your dealer or Xerox Service Center all the steps you've gone through. This will aid them in fixing your terminal and gives you more credibility.

PROBLEM 2) The terminal blanks out all of a sudden.

- A) Follow the steps outlined in Problem 1, starting with step F. (Yes, that's right, step F. You're going to have to operate.)
- B) This could be a thermal problem, which is a fancy way of saying some chips are heating

up and have stopped working. There is nothing a user can do about this except take it to the dealer or Xerox Service Center.

PROBLEM 3) The characters are all garbled on the screen.

- A) Follow the SET-UP procedure in Problem 1.
- B) If that did not solve the problem, then the serial port on the computer or the terminal's character generator is bad.
 - b1) Test your serial port using someone else's "working" terminal or attach a "working" printer (set at 9600 baud) to the computer's serial port. If it works, the terminal's character generator is bad. Have your dealer order this from Morrow. This is easy to replace; it's only a socketed chip. Or take your terminal to Xerox and tell them the steps you went through.
 - b2) If the computer is the problem, the chip that controls the terminal's serial port will have to be replaced. **WARNING! ONLY A PERSON SKILLED AT SOLDERING SHOULD ATTEMPT THIS. REPLACE THE CHIP WITH A SOCKET. IF IT HAPPENED ONCE, IT MAY HAPPEN AGAIN.**
 - b2a) On a Revision 1 board, replace the 8251A UART at location IC9.
 - b2b) On a Revision 2 board, replace the 8251A UART that is located inboard.
 - b2c) On the MD11 mother-board, replace the Z80 DART at location U26. (This one is socketed and is easy to replace.)

Care must be taken when opening any piece of electronic equipment. Remember, you are just opening the unit to look for the obvious errors (i.e., chips or cables that have become loose). Unless you really know what you are doing, any major repairs should only be done by factory-trained technicians. ■

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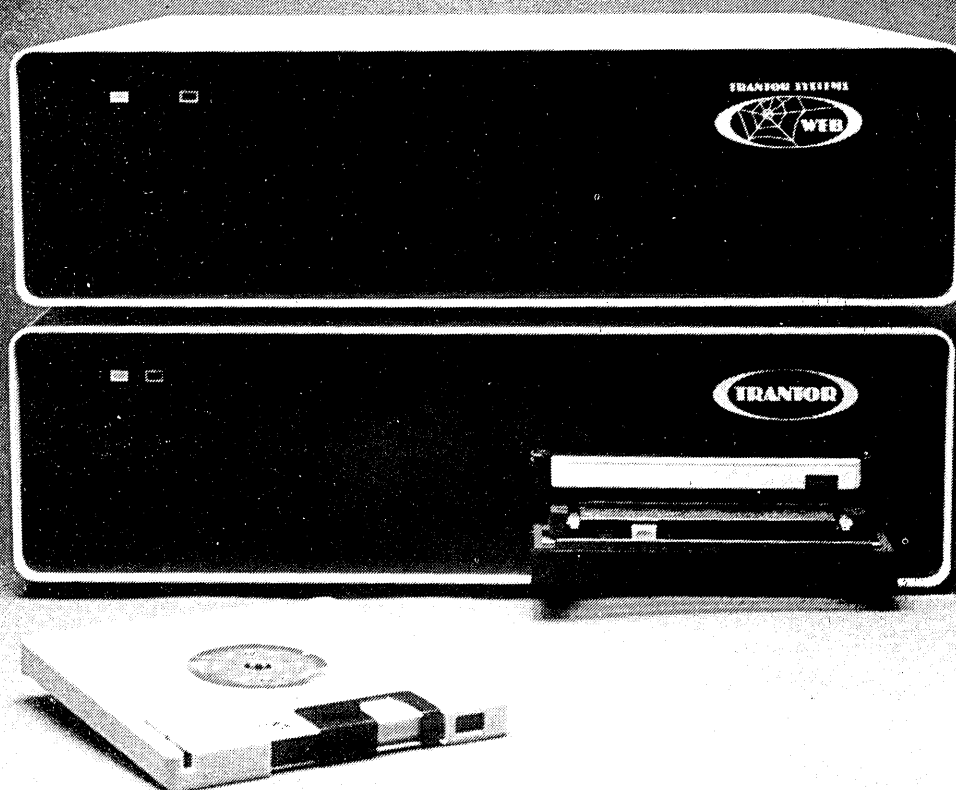
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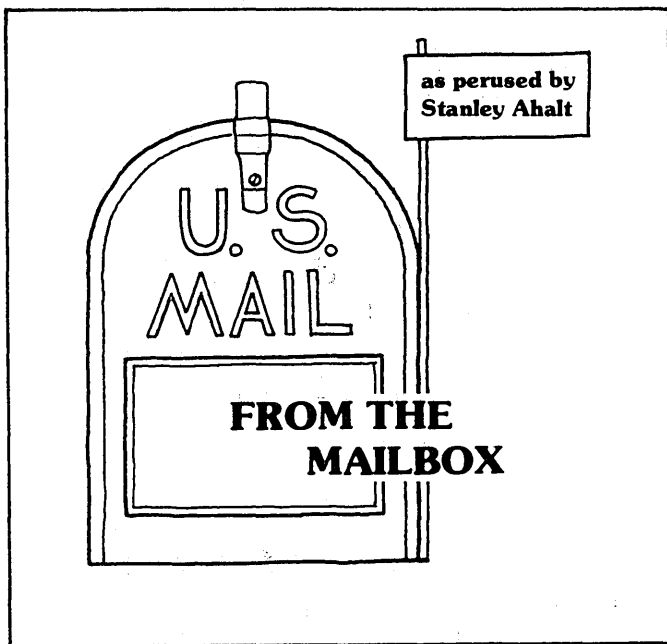
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[This column is an open forum for users to share their questions--and answers. I encourage you to send in both. If I can't answer the question, maybe someone else out there can.]

Many people have written in to inquire about the 8088 co-processor boards which can be attached to our MD's so that we may run some of the MS-DOS programs which are available. I can't comment on them, since I haven't tried any of them out. Can anyone write us a review, or maybe just a few short comments?

From Charles S., England - Along with a number of other people, Charles is having some problems with Logi-Calc. Since Morrow has now started bundling Super-Calc, the publishers of Logi-Calc, Software Products International (SPI), are no longer supporting the Morrow owners who use their software. So let's all pull together. Here's the specific problem: when positioned in column DW, a return <CR> should send the cursor to the first column of the next line. But it doesn't. Also, the command ";U" should present a directory of the disk--no such luck. Why do neither of these features work? ##

From Elaine R., Culver City, CA - Explaining that she is an absolute novice, Elaine writes, "One of the things that really bothers me is that I cannot really understand the CP/M manual. Isn't there a simplified version out for people like me?" Yes! CP/M and the Personal Computer by Thomas Dwyer and Margot Critchfield, Addison-Wesley, \$19.95, is one of the best beginner level books on the market for learning CP/M. And once you've mastered the basics, you'll find that The Programmer's CP/M Handbook by Andy Johnson-Laird, Osbourne/McGraw-Hill, \$21.95, is an excellent guide to the actual innards of CP/M. Good Reading! ##

From Professor A., Mississauga, Ontario - When using NewWord (NW), the professor uses ^O^S for double line spacing. Everything goes along fine for a while, then the system seems to "drop" the letters one line lower than where they should be. This occurs with a Televideo 925-950 terminal. Although print-outs still turn out fine, it makes reading the screen very cumbersome. Has anyone else had the same problem and managed to rectify it? I know that NW has been revised, but does the latest revision solve the aforementioned problem? ##

From Gordon N., Lee, MA - Gordon would like to know if there is an interrupt handler patch for the MD3 (with MDT 60 terminal) that will allow the arrow keys to repeat when held down? There are two patches in the June 1983 issue of Microsystems, but they may not be applicable. Has anyone out there addressed this problem? Is it even plausible with the MDT 60?##

From Joe V., Clinton, OH - Regarding Personal Pearl: "If one could read data from a list report to be used in calculations in a fixed report, this would be a real improvement." How about it, Pearlsoft, are you listening? ##

From Bill S., El Paso, TX - Bill uses Personal Pearl (PP) to produce merge-print data files for NewWord. The problem is that after .df and .rv commands are inserted into the PP report, NW will consistently read the second line of the report as part of the first line, running the data together. If the data lines are retyped exactly as they appear on the screen, the problem disappears! Sounds to me like PP puts in a nonprintable character at the end of each line. Has anyone else experienced this problem or found a solution? ##

Come on now, folks! Keep the letters and questions coming. We can all benefit from our shared experience. When you write, be sure to completely describe your equipment and problem. Until next issue...Have a great 1985! (Stan Ahalt, 102-B Victoria Lane, Clemson, SC 29631; MCI: SAHALT)

Back Issues

In April the price of back issues of the Morrow Owners' Review will go up to \$3.00 per issue. However, until April 15, 1985, you can still get them for \$2.00 a copy, first class postage included. All bi-monthly issues are still available, starting with April 1984. Send your check or money order to MOR, P.O. Box 5487, Berkeley, CA 94705, Attn: Back Issues.

MICRO JUSTIFICATION AND PROPORTIONAL SPACING IN WORDSTAR

by Dick Baker

Karl Fuss's article "Proportional Spacing with WordStar" in Morrow Owner's Review #3 prompted me to reattack this problem. Some months back I bought a Modern PS printwheel for my Silver-Reed (= Morrow = Transtar) printer and a copy of the widely advertised book Proportional Spacing on WordStar (Fairport, NY: Writing Consultants, 1983), which gives instructions on invoking WordStar's hidden PS table. I was unhappy with the results and abandoned the effort.

That was because the book gave tables for several PS printwheels, but not mine. And the fact that WordStar's PS table has to be customized for every printwheel is, as Fuss noted, why WS left it undocumented.

While Karl Fuss didn't completely understand how WordStar's PS table works, he did, through keen insight, tireless trial and effort, or Divine Guidance, come up with numbers that make the PS wheel print quite nicely and that improve the look of the regular Courier 10 and 12 wheels. (These paragraphs are in Courier 12 with the new table.)

First, some terms. Standard typewriter (and printer) spacing is 10 pitch (10 characters per inch, evenly spaced; also called pica; same as .cw 12, the WordStar normal pitch) or 12 pitch (12 characters per inch, evenly spaced; also called elite; same as .cw 10, the WordStar alternate pitch). On a standard typeface the wider letters are compressed to minimize the difference between wide and narrow characters, necessary when each character gets exactly 1/10 or 1/12 inch of space. PS printwheels--and typefaces designed for professional setting--show a greater variation in character width, since the typesetter allows for proportional

spacing. (This paragraph is printed using the PS wheel at 11 pitch [.cw 11], which, as Fuss suggests, seems to give the most pleasing results.)

Justification means adding space to a line to make the right margin even ("justified right" as opposed to "ragged right"); in WordStar it is toggled on and off with ^OJ (on is default). Microjustification (hereafter "UJ" for brevity) is the capacity to vary spacing between characters, thus deviating from the evenly spaced 10 or 12 pitch found on a typewriter; in WordStar it is switched with a dot command, .uj on/off (on is default). The two are not the same: with justify on and UJ off, WordStar spaces characters evenly and adds full spaces between words to achieve right justification--just as it does on the screen display.

WordStar's spacing table, beginning at 07D8H for version 3.0, 07BAH for 3.3, or at the mnemonic PSTAB: in both, assigns a two-digit number to every printable ASCII character, including the space. Actually, it is two tables in one: The first digit is the variable spacing assigned whenever UJ is in effect (hereafter UJ table); the second digit in each entry is the PS table. You'll note that the UJ table values are almost all 4s and 5s with just a few 3s and 6s; as noted earlier, typewriter-style fonts are compressed to minimize variations in width. The PS table runs from 2 to 7 to allow for the greater range of PS character widths.

Two steps are necessary to use a PS printwheel and proportional spacing [as in this paragraph]: imbed a ^P in the text, which tells WordStar to use the PS table, and tell your printer that a PS wheel is in use. The character array on the PS wheel is different from

standard wheels, because wider characters must be alternated with narrower ones to prevent physical interference. Your printer has the logic to read the PS wheel; it is invoked by turning DIP switches 1-1 and 1-2 on while the printer is off, then powering up.

So much for proportional spacing. Now back to the regular courier printwheels.

Unfortunately, the values in WordStar's UJ table are a little too wide for the Silver-Reed courier wheels. Intercharacter spacing in justified lines tends to be too great, and interword spaces too small, creating a run-together look (this is true of both 10 and 12 pitch, although it seems more noticeable at 10 pitch, as here). In fact, WordStar's UJ often interferes with ragged right printing, inserting undesirable intercharacter spacing. For this reason, I've always turned UJ off in unjustified copy.

I won't repeat here the procedures for patching the WordStar spacing tables; you can use DDT, as described quite lucidly by Karl Fuss, or WordStar's re-install routine. The approach taken here should apply to any letter-quality printer, although, of course, some experimentation with table values will be in order. Also, while I haven't yet used NewWord, I understand that it too has a UJ spacing table and undocumented PS table and should respond equally well to these procedures.

One last note: a quick, convenient way to test table patches uses DDT and GO. At the A> prompt, enter SAVE 0 GO.COM. Enter DDT WS.COM to load WS into the TPA; use DDT's S command to change values; exit DDT and type GO. The altered WordStar will run immediately. If you like your patches, go back and make them permanent.■

WORDSTAR SPACING TABLES (UJ/PS)

3.0	CHR	OLD	NEW	3.0	CHR	OLD	NEW
07D8		52	42	0808	P	54	44
---9	!	43	33	---9	Q	56	45
---A	"	44	34	---A	R	56	45
---B	#	54	44	---B	S	54	44
---C	\$	54	44	---C	T	55	45
---D	%	56	46	---D	U	56	45
---E	&	56	46	---E	V	56	45
---F	'	32	32	---F	W	67	56
07E0	(	43	33	0810	X	56	45
---1	)	43	33	---1	Y	56	45
---2	*	54	44	---2	Z	55*	44
---3	+	54	44	---3	[	54	44
---4	,	42	32	---4	\	56	46
---5	-	54	44	---5	]	54	44
---6	.	32	32	---6	^	56	44
---7	/	53	43	---7		55	43
---8	0	54	44	---8	~	54	44
---9	1	54	44	---9	a	54	43
---A	2	54	44	---A	b	54	44
---B	3	54	44	---B	c	54	43
---C	4	54	44	---C	d	54	44
---D	5	54	44	---D	e	54	43
---E	6	54	44	---E	f	53	42
---F	7	54	44	---F	g	54	44
07F0	8	54	44	0820	h	54	44
---1	9	54	44	---1	i	52	41
---2	:	43	33	---2	j	52	42
---3	;	42	32	---3	k	54	44
---4	<	54	44	---4	l	52	42
---5	=	54	55	---5	m	66	55
---6	>	54	44	---6	n	54	44
---7	?	54	44	---7	o	54	43
---8	@	56	46	---8	p	54	44
---9	A	55	45	---9	q	54	44
---A	B	55	45	---A	r	53	43
---B	C	55	45	---B	s	53	43
---C	D	56	45	---C	t	53	42
---D	E	55	44	---D	u	54	44
---E	F	55	44	---E	v	54	43*
---F	G	56	45	---F	w	66	55
0800	H	56	45	0830	x	54	44
---1	I	53	42	---1	y	54	44
---2	J	53	43	---2	z	54	43
---3	K	56	45	---3	{	54	44
---4	L	55	44	---4		56	46
---5	M	66	55	---5	}	54	44
---6	N	56	45	---6	~	56	46
---7	O	56	45	---7		55	42

*Differs from table in MOR #3.

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Dave Gerrold, Profiles Magazine

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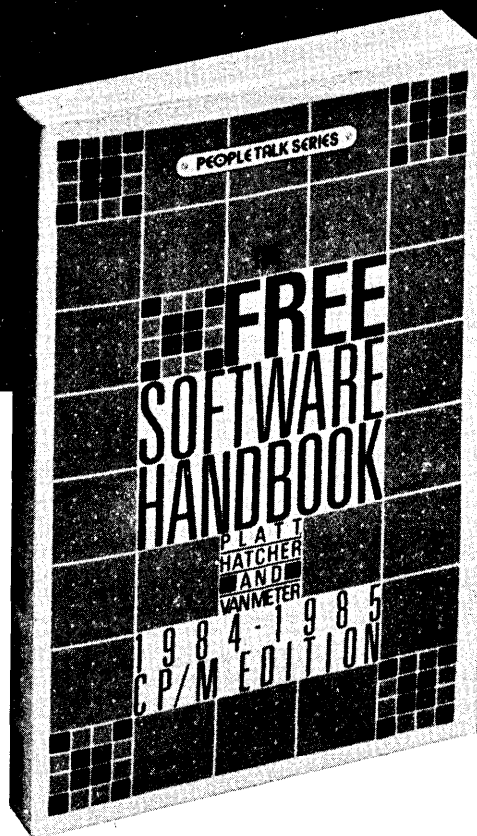
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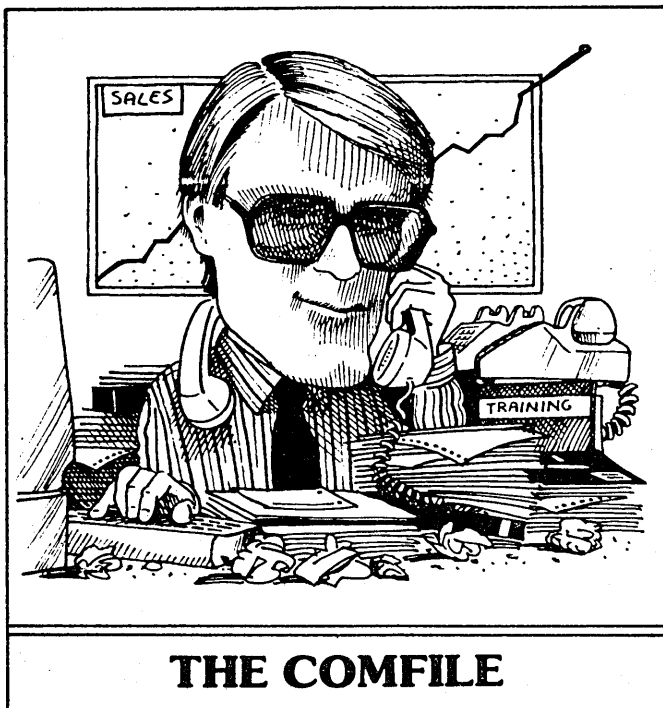
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THE COMFILE

by Ed Niehaus, Morrow Inc.

I am still hearing some expressions of concern that Morrow is abandoning the CP/M world. Well, to assure you, our line of CP/M systems, especially the hard disk systems, is still selling very well. As long as there is a market for CP/M machines, we'll make 'em. But when and if that market dries up, we will have to abandon production of CP/M's.

You all know about the MD5-E, the 5 megabyte hard disk machine (see ad in October '84 issue of MOR). The same machine is now sold as the MD5 and comes bundled with the full complement of software. The price is just \$2295, including the new MT-70 terminal. This terminal has an easy to read amber-on-grey screen in a sculpted tilt-and-swivel module that sits atop a low profile base. The keyboard is also of a low profile and has a delightful touch.

Besides that, we have an ongoing program of development for this CP/M product line. Several computers, among them the MD3, have been repackaged by building the computer into the base of the MT-70 terminal, which makes it an attractive small package.

And what's new with Pivot--our MS/DOS portable (See MOR, Vol. I, # 5, p. 50). Well, for one thing, chances are you can see it now at your dealer's. We have been shipping them out for over a month. Pivot has turned out to be easy to build and is very reliable. If you're holding off because you're concerned about its being a new product, wait no longer--the bugs are out of this one.

Pivot will include the GSS-Drivers from Graphics Software Systems of Portland Oregon. The GSS-Drivers provide an enhancement to the MS-DOS operating system to allow easy drawing of graphics on specific machines. The software says, "draw an arc of given radius and included angle at such and such center point"; the GSS-Drivers tell a specific kind of computer how to do it.

The drivers use a new ANSI* standard for a VDI (virtual device interface), allowing application software to ignore specific quirks of a given computer or output device. IBM has "blessed" this standard in its new PC/ES series of software by incorporating GSS.

Ironically, rumor has it that IBM did this because IBM's PC/AT is not IBM compatible! Some important software products would not run on the PC/AT, so they added GSS-Drivers. IBM's move in that direction is enough incentive for the software companies to come up with products that are GSS-compatible. This is good news for PIVOT folks, since Morrow is bundling the GSS-Drivers with the machine.

By the way, we have some new faces at Morrow: Barry Berghorn joined us in September. Berghorn comes to Morrow from Via Video, Inc. of Santa Clara, where he was president and Chief Executive Officer. Prior to that he was with Memorex Corporation, where he was responsible for distribution of video and computer media products. His most recent position with Memorex was vice president and general manager of the Consumer and Business Media Group's International Division.

Barry, who holds a B.S. degree from Northwestern University and an M.B.A. from the University of Chicago, also logged eight years in product marketing at Proctor and Gamble.

Larry Fink has joined Morrow as vice President of Operations. Larry did a short tour as manufacturing manager for our friends at Kaypro. Prior to that, he was with the Ford Motor Company for thirty years as an industrial engineer and manufacturing manager.

These faces are part of our new look at Morrow. Personally, I am very glad these people are on board--I am learning a lot from each of them.

*ANSI stands for the American National Standards Institute. Bob Groppo says it means "unable to stand still for any length of time." Take your pick.

[Ed Niehaus tells us that he's been getting a lot of mail from people who want schematics or specific technical information. Ed, who says he is "probably the least technical of Morrow's employees," takes care of questions pertaining to Morrow's communications with the users of its products. Please refer questions of technical nature to Dave Block's or Stan Ahalt's columns.]

TOWARD A MORE USEFUL MICRO DECISION

1876K disk-space on the MD2

by Derek Lee Beatty

I'd had my MD2 for a year. I liked it, but I kept running out of disk space. 372 thousand characters sounds like a lot, but it fills quickly. Personal Pearl sure looked nice, but who wants to change disks that often?

Since I'm a programmer and an electrical engineering student, I decided to remedy my lack of disk space. After examining the Micro Decision hardware and software, I connected two double-sided, 80-track drives to my Micro Decision. WordStar and Correct-It fit on the same disk. Personal Pearl fits on one disk.

This article details my expansion to 1876K of disk storage. The modifications I describe will let you have 752K on drives A: and B:, and 186K on C: and D:, without changing the MD2 hardware except by connecting two new drives to the "Expansion Drives" connector. (My system is an older MD2 with the rev. 1.1 circuit board, Rev. 1.3 ROM, CP/M 2.2 Rev. 1.5, FORMAT Rev. 2.3, and SYSGEN 2.0 MD1.2. The instructions in this article are specific to this system.)

Begin by following Stan Young's article in MOR, Vol 1, #1, pp. 14-15, "Disk Drive Additions for Morrow MD." However, use double-sided, 96-track-per-inch drives. (For example, I used CDC 9409-T disk drives.) One note: I couldn't make drive D: work by following the article; to make drive D: work, I had to place the disk select jumper at DS4, and connect pins 4 and 6, instead of 4 and 12. You should use only premium-quality diskettes in the 96-track-per-inch (also called 80-track) drives.

Once you have all four disk drives working reliably, you're ready to begin modifying your Micro Decision's software. You'll need two disks: one blank disk for testing (I'll call this the test disk.), and one FORMATTed and SYSGENned disk containing the following .COM files: DDT, FORMAT, PIP, STAT, and SYSGEN. (I'll call this the system disk.) You'll also need a large sheet of paper for notes, and a few hours without interruptions in front of your Micro Decision.

Press the RESET button on your Micro Decision and insert the system disk. Verify that you have only DDT, FORMAT, PIP, STAT, and SYSGEN on the disk--you'll need the blank space.

Follow the instructions below. Type the information that is underlined. <R> means the RETURN key; ^C means control-C, that is, hold down the CTRL key and press the C key. Comments are enclosed in square brackets.

Wherever you see "dddd" in these instructions, you should see some four-character expression from your

Micro Decision, but you should ignore its actual value. The labels I suggest for the values you write down are intended to be an aid if you are unsuccessful in following these instructions and ask a "wizard" (a person who spends too much time with computers) for help.

```
A>SYSGEN<R>
SYSGEN VER 2.0 MD1.2
SOURCE DRIVE NAME (OR RETURN TO SKIP) A<R>
DESTINATION DRIVE NAME (OR RETURN TO REBOOT) <R>
A>SAVE 48 CPM0.COM<R>
A>DDT CPM0.COM<R>
DDT VERS 2.2
NEXT PC
3100 0100
-S2344<R>
2344 WW <R>
2345 YY <R>
-
```

[Write down the two characters WW; label them "low byte of MTAB address." Write down the two characters YY; label them "high byte of MTAB address." Wherever you see YY or WW, below, substitute the appropriate characters.]

```
-HYY,CF<R>
dddd 00XX -
```

[Write down the two characters XX; label them "high byte of MTAB address in SYSGEN image." Wherever you see XX below, substitute the appropriate characters. Write down the combination XXWW; label them "MTAB address in SYSGEN image."]

```
-HXXWW,12<R>
IIII dddd -
```

[Write down the four characters IIII; label them "MTAB drive C: address in SYSGEN image."]

```
-SIIII<R>
IIII 04 24<R>
dddd dd ^C
A>SAVE 48 CPM1.COM<R>
A>CPM1<R>
SYSGEN 2.0 MD1.2
SOURCE DRIVE NAME (OR RETURN TO SKIP) <R>
DESTINATION DRIVE NAME (OR RETURN TO REBOOT)
A<R>
DESTINATION DRIVE NAME (OR RETURN TO REBOOT) <R>
A>
```

[Press the RESET button on your Micro Decision and press RETURN. You should see the

usual messages, followed by the CP/M prompt. This procedure is sometimes called a "cold boot." You'll have to "perform a cold boot" several times before you're finished.]

A>FORMAT<R>

[You should see the usual message from FORMAT asking you to enter the name of a drive. Enter C. You should see a new message, "Single or Double sided format (S or D)." Enter S. Insert the test disk in drive C: and enter <R>. Formatting should proceed normally. When asked to insert the system disk, enter <R>.]

The top of the screen should display the revision number of the FORMAT program. Write this down, labeling it "FORMAT revision number."]

A>STAT C:DSK:<R>

[You should see about ten lines of information, one of which should be "190: Kilobyte Drive Capacity."]

A>PIP C:=A:*. *[V]<R>

[Copying will proceed. You should see the name of each file as it is copied. After a few seconds, you should see the CP/M prompt, without seeing any error messages.]

Repeat the last three steps, involving FORMAT, STAT, and PIP. However, specify a double-sided format. This time, STAT should display "390 Kilobyte Drive Capacity."

Note whether you have Rev. 2.3 of the FORMAT program. If so, the next step will be simple. If not, you'll have some tedious searching to do.]

A>DDT FORMAT.COM<R>

DDT VERS. 2.2
NEXT PC
0B00 0100
-

[If you have Rev. 2.3, the address of the byte to be changed in the format program is 08C7. You need not search for this byte. If you have another revision of the format program, the byte to be changed may be somewhere else, and you must search for it. To search, repeat the following command until you've seen the end of some English messages on the right-hand side of the screen.]

-d<R>

[Each "d" command will display part of the format program in both hexadecimal and text (ASCII) form. You need to find a byte equal to 50 which occurs after the end of the text messages. Once you've found it on the screen, the first three characters on the line in which it appears will be the first three characters of its address. The column in which it appears will give the last character of the byte's address. Columns are numbered 0123456789ABCDEF. Substitute the address of this byte for "08C7" below.)

```
-S08C7<R>
08C7 50 A0<R>
dddd dd ^C
A>SAVE 10 FORMAT80.COM<R> (
```

[At this point, it might be worthwhile to mention that you can take a shortcut when you use FORMAT (at least for FORMAT Rev. 2.3). This shortcut, which wasn't mentioned in my Micro Decision User's Guide, lets you avoid the questions which FORMAT asks. The following command demonstrates this; it formats the disk in drive C: as a double-sided disk. As another example, FORMAT BS would format the disk in drive B: as a single-sided disk. If you use FORMAT this way, be sure that the disk you wish to format is inserted before you press RETURN; afterwards is too late.)

A>FORMAT80 CD<R>

[Watch the screen closely. The disk in drive C: will be formatted, but the FORMAT program will not stop until it has formatted all of the disk's tracks. The numbers displayed for tracks beyond track 99 will not be displayed properly; you will see the sequence ;;<=>? in place of the upper digits.]

Repeat the STAT and PIP tests as before. STAT should again display 390K. At this point, you have established that all the tracks on the drive work, but you have not told CP/M that the last half of the disk exists.]

```
A>SYSGEN<R>
SYSGEN 2.0 MD1.2
SOURCE DRIVE NAME (OR RETURN TO SKIP) A<R>
DESTINATION DRIVE NAME (OR RETURN TO REBOOT)
C<R>
DOUBLE SIDED DISKETTE CANNOT ACCEPT SINGLE-
SIDED SYSTEM
DESTINATION DRIVE NAME (OR RETURN TO REBOOT) <R>
A>
```

[You have now established that SYSGEN knows that you have a double-sided drive.]

Note whether you have SYSGEN 2.0 MD1.2. If you do not, you're partially out of luck.

(continued)

You won't be able to use a new drive as drive A: by following these instructions. Assuming you do have SYSGEN 2.0 MD1.2, proceed as follows:]

```
A>DDT SYSGEN.COM<R>
SYSGEN VERS. 2.2
NEXT PC
0600 0100
-L389<R>
```

[You should see several lines. The first should end with "JNZ 03B8".]

```
-S389<R>
0389 C2 0<R>
038A B8 0<R>
038B 03 0<R>
038C dd ^C
A>SAVE 5 DOUBLGEN.COM
```

[You have now created a modified version of SYSGEN which does not care whether your disk drives are single- or double-sided.]

```
A>DOUBLGEN
SYSGEN 2.0 MD1.2
SOURCE DRIVE NAME (OR RETURN TO SKIP) A<R>
DESTINATION DRIVE NAME (OR RETURN TO REBOOT)
C<R>
DESTINATION DRIVE NAME (OR RETURN TO REBOOT) <R>
A>
```

[You have now established that the modified version of SYSGEN will write to a double-sided diskette.]

```
A>DDT<R>
DDT VERS. 2.2
NEXT PC
0100 0100
-A100
0100 MVI C,1F<R>
0102 CALL 5<R>
0105 RST 7<R>
0106 <R> -
G100<R>
*0105
-X<R>
```

[You will see a line containing H=JJKK. Write down the characters JJ and KK. Label JJ "High byte of DPB address." Label KK "Low byte of DPB address." Wherever you see JJ or KK below, substitute the appropriate characters.]

```
-HJJ,CF<R>
dddd 00MM
-^C
A>
```

[Write down the characters MM. Label them "High byte of DPB address in SYSGEN image." Write down the combination MMKK; label it "Address of DPB in SYSGEN image."]

```
A>DDT CPM1.COM
DDT VERS. 2.2
```

```
NEXT PC
3100 0100 -
HMMKK,1E<R>
NNNN dddd
-SNNNN<R>
NNNN 28 <R>
dddd 00 <R>
dddd 04 05<R>
dddd 0F 1F<R>
dddd 01 03<R>
dddd 5E BC<R>
dddd 00 <R>
dddd 7F <R>
dddd 00 <R>
dddd C0 80<R>
dddd 00 .<R>
```

```
-SIII<R>
III 24 A4<R>
dddd 5A 7A<R>
dddd dd ^C
A>SAVE 48 CPM2.COM<R>
A>CPM2<R>
```

```
SYSGEN 2.0 MD1.2
SOURCE DRIVE NAME (OR RETURN TO SKIP) <R>
DESTINATION DRIVE NAME (OR RETURN TO REBOOT)
A<R>
DESTINATION DRIVE NAME (OR RETURN TO REBOOT) <R>
```

[Perform a cold boot; press the RESET button, then press RETURN.]

```
A>FORMAT80 CD<R>
A>STAT C:DSK:<R>
```

[You will see "756 Kilobyte Drive Capacity."]

```
A>PIP C:=A:*. *[V]<R>
```

[You now have a drive C: capable of storing 752K of data. However, it is operating at the same head step rate (the speed at which the head moves across the disk) as your other drives. Most MD2's have Shugart SA200 drives with head step times of 20 milliseconds. High-performance drives such as the CDC 9409-T drives will operate at higher speeds (lower step times). The following modification changes the step time for drive C: to 6 milliseconds, close to the CDC drive's minimum step time of 5 milliseconds.]

```
A>DDT CPM2.COM<R>
DDT VERS. 2.2
NEXT PC
3100 0100
-SIII<R>
III A4 <R>
dddd 7A <R>
dddd 58 <R>
dddd 05 <R>
dddd 6F DF<R>
dddd dd ^C
```

(Illustrative for 6ms step.)


```
A>SAVE 48 CPM3.COM<R>
A>CPM3<R>
<R>A<R><R>
A>
```

[Cold boot.]

In general, the most-significant nybble (a nybble is half a byte. Get it?) of the fifth byte of each drives "MTAB" entry of can be set to F to give a 2-ms step time, E for 4 ms, D for 6 ms, ... A for 14 ms, 9 for 16 ms, ... 6 for 20 ms, ... 0 for 32 ms. The value of this nybble has been the subject of several articles in MOR.]

```
A>PIP C:=A:*. *[V]<R>
```

[Should be faster and quieter than before.]

```
A>DDT CPM3.COM<R>
DDT VERS. 2.2
NEXT PC
3100 0100
-IDOUBLGEN.COM<R>
-R<R>
NEXT PC
3100 0100
-
```

[Using the S command, change memory beginning at XXWW to the following (read by columns).]

A4	A4	01	02
7E	7F	D8	59
58	58	58	58
05	05	05	05
DF	DF	6F	6F
03	03	03	03
05	05	05	05
1C	1C	1C	1C
FF	FF	FF	FF

[Using the S command, change memory beginning at MMKK to the following (read by columns).]

28	28	28	28
00	00	00	00
05	05	04	04
1F	1F	0F	0F
03	03	01	01
BC	BC	5E	5E
00	00	00	00
7F	7F	7F	7F
00	00	00	00
80	80	C0	C0
00	00	00	00
20	20	20	20
00	00	00	00
02	02	02	02
00	00	00	00

-~C

```
A>SAVE 48 CPM4.COM<R>
A>CPM4<R>
SYSGEN 2.0 MD1.2
```

```
SOURCE DRIVE NAME (OR RETURN TO SKIP) <R>
DESTINATION DRIVE NAME (OR RETURN TO REBOOT) A<R>
DESTINATION DRIVE NAME (OR RETURN TO REBOOT) C<R>
DESTINATION DRIVE NAME (OR RETURN TO REBOOT) <R>
A>
```

[Cold boot. Explore!]

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□□□

Erratum

The phone contact number for the Micro Decision Bakersfield Users Group was incorrectly listed in MOR Volume 1, Number 5, December 1984, on page 52. The correct number is (805)861-3682.

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GETTING STARTED WITH TURBO PASCAL

by Erik Westgard

One of the ways to move rapidly from the ranks of beginner to expert programmer is to follow the advice of specialists. Two of their rules are: (1) Programs longer than two pages should not be written in BASIC, and (2) structured programming is a very good thing.

Pascal is the most popular of the structured languages and is widely taught at the college level. Pascal is a fast language (10 times faster than BASIC), and encourages good programming habits, such as using DO loops instead of GO TO's. While compared to BASIC, Pascal is more difficult to learn, judging by my own experience, you will be much happier with the outcome of your programming efforts in Pascal. In this article, I sometimes compare features of Pascal with those of BASIC, which will be helpful to those of you who already have some programming experience in the BASIC language.

Borland International's Turbo Pascal comes postpaid for \$54.95 and includes a very readable 300-page manual. (And it arrived a week after I called in the order.) There are two versions of the installation instructions in the package. The first one is in the book, beginning on page five, and the second one is on the diskette itself in a file called READ.ME for those who are too impatient to read the book first.

Before you begin anything, put a write-protect tab on your distribution disk. Then FORMAT two blank diskettes. Label one with PROGRAMS--the ones you are going to create. Use BACKUP to make a copy of the distribution diskette on the other formatted floppy. Call that copy your Turbo working diskette. Put your CP/M disk in the A-drive and run SYSGEN to put CP/M on the outer tracks of your Turbo working diskette. This will make it a "bootable" diskette. If you load it in the A-drive and reset the machine, you'll get the A> prompt of CP/M.

Next, you have to run the terminal installation program. When the A> prompt appears, type TINST. The terminal installation program starts up, and asks for a terminal type. If you find yours on the menu, enter it. Otherwise, the program will let you enter the codes representing the characteristics of your terminal type, one at a time for cursor movement, clear screen, etc. This is to allow you to use the full screen editor which is included with Turbo. (This a very useful program and can be purchased separately from Borland.)

You can start Turbo automatically after you hit the reset button. To achieve this you must copy AUTO.COM from your CP/M distribution disk onto your Turbo working diskette. Type AUTO TURBO at the A> prompt. When you next reset the system, Turbo will run immediately and display the Turbo Pascal menu. You are

asked if you wish error messages to be included. Answering "Y" will make that feature available at the price of 1KB of memory space, which means that you have that much less space to use for your own program. The main menu appears in the upper left corner of the screen, offering several options, listing the amount of free memory, and showing the logged disk drive.

When you want to make a program, you first create what is called a "source file" with the editor. To load an old or create a new source file, type E for edit. Source files to be compiled by Pascal always have the filetype ".PAS". You can load MC.PAS, a sample spreadsheet program included on the distribution disk, to get a sample of how Pascal programming is done.

Turbo allows you to compile a program and leave the result in memory for immediate execution or write the result in the form of a runnable .COM file on disk. The sample spreadsheet program called Microcalc did not compile to memory on my MD2 (not enough memory I think), so I typed the character "O" from the main menu to do a compilation to disk. You can specify other compiler options, called "directives," in the source file at the top of your program. For instance, you can direct Turbo to either have your program ignore or accept a CTRL-C from the keyboard. If you don't give the directive to accept CTRL-C, Turbo will have your program ignore CTRL-C by default.

If your program, on execution, gets into an interminable loop or otherwise gets "stuck," you might have to re-boot the computer to get things moving again. But the directive (\$U+) will help you pull out by simply typing CTRL-C. The price you pay for it is that your program will now run a bit slower. Don't use this directive with the second programming example in this article (PTERM, Figure 2), as it has an exit routine built in.

I have included two sample Pascal programs for you to try once you have the compiler. One of the biggest problems for a beginner in any language is getting that first program up and running. Pascal has a very complicated syntax (compared to BASIC) and can be a shock to casual programmers who like to program at the keyboard a line at a time. In Pascal, you almost have to lay out the logic of your program on paper ahead of time.

Part of the reason for this is that Pascal forces the programmer to declare variables in advance. In BASIC one can just say A = 10, and the BASIC interpreter assumes that A is a real variable. In Pascal you will have to declare A as a real, integer or byte value in a section called VAR at the top of the program for

global variables, or at the top of a "procedure" for variables used only in that procedure.

Procedures are another Pascal construct. A procedure is a little like a subroutine in BASIC, in that you explicitly call it from a certain point in your main program; execution of instructions will resume at that same point when the subroutine is through.

As mentioned above, each procedure has its own variables (if you want) and can pass information to

other procedures. Good programming practice is to break down your tasks into blocks, so that debugging and maintenance are made simpler. BASIC programs tend to be monolithic, and finding a bug in one area usually involves wading through the whole program. It is much better to split the different tasks of the program up into procedures, and Pascal is a language which encourages you to do just that.

The "bubblesort" program, illustrated by Figure 1, is an example to show you how to write and use procedures. This program sorts numbers that you type in, one per line, then sorts the numbers and prints out the sorted result. I have broken the sorting task into three parts. First, in a procedure called "readin," I read in the integers to be sorted from the keyboard, using a "readln" statement. That one is like the BASIC LINE INPUT statement. The numbers go into an integer array called "a" that I have defined globally at the top of the program. One could add some input checking here to screen out invalid numbers.

Next, I run the bubblesort procedure. This routine sorts the array in memory. I use an IF THEN statement that is a little like the one found in BASIC. I can use a BEGIN and END clause to enclose several statements I wish to execute if my expression is true. Finally, when the sorting is finished, I execute a procedure called "printout," which uses a FOR DO loop (like FOR NEXT in BASIC) to write my sorted array out to the terminal. The Pascal "write" statement is similar to the BASIC PRINT statement with a semicolon--like "PRINT A;"--in that it does not do an automatic carriage return. The Pascal "writeln" statement writes a line, then does a carriage return.

Pascal introduces a new type of variable called "boolean." This describes an expression in the language that is either true or false. I use several boolean variables to control the execution of my second program called PTERM (Figure 2). (PTERM is a Pascal version of the BASIC terminal program described in the August 1984 issue of MOR, Vol. 1, #3.) The program uses one procedure called "readports" to read ports and keyboard and also write characters to the host. The program can run at 1200 baud and will pass parity settings from the terminal on to the host. (NOTE: Here I am using port assignments and status registers valid for the MD2 and MD3. Other models, such as the MD16, use different input-output port numbers.)

Buy yourself a Pascal textbook, and try some of the sample programs included there. It is a good idea to tape a sample program on the wall as you work to remind you of how to order the statements, how to do the value assignments (different from BASIC), and generally to keep you going. Turbo Pascal, more than BASIC, flags logic errors as syntax errors, so if you get an error message, trace your program flow carefully if you cannot find any syntax problems. You will often find a missing END statement or something like it. A particularly fine feature of Turbo is that it will return to the editor and place the cursor under

Figure 1

```
PROGRAM bubble;
{ Pascal bubble sort 4/81}
CONST
    maxlength=1000;
VAR
    n : integer;
    a : ARRAY [1..maxlength] OF integer;
PROCEDURE readin;
VAR
    i: integer;
BEGIN
    writeln;
    writeln ('Pascal Bubble Sort ');
    writeln;
    writeln ('# of items to be sorted');
    readln (n);
    writeln ('Type each item on a line');
    FOR i:=1 to n DO
        readln (a[i]);
    END; {readin}
PROCEDURE bubblesort;
VAR
    i,j,t: integer;
BEGIN
    FOR i:=n-1 downto 1 DO
        FOR j:=1 to i DO
            IF a[j] >= a[j+1]
                THEN
                    BEGIN
                        t:=a[j+1];
                        a[j+1]:=a[j];
                        a[j]:=t;
                    END {if}
        END; {bubblesort}
PROCEDURE printout;
VAR
    j: integer;
BEGIN
    FOR j:=1 to n DO
        BEGIN
            write (a[j]);
            write (' ');
        END;
    END; {printout}
BEGIN {main}
    readin;
    bubblesort;
    printout;
END. {main}
```

the point of any syntax or run-time errors it finds while a program is being compiled to memory.

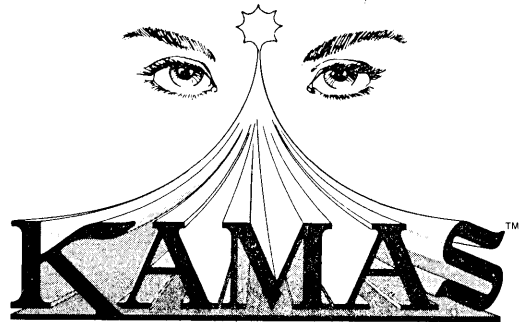
The definitive reference book on Pascal is Pascal User Manual and Report by Kathleen Jensen and Niklaus Wirth. (He is the Swiss professor who designed the language.) It is published by Springer-Verlag in New York. Peter Grogono's book Programming in Pascal, published by Addison-Wesley in Reading, Massachusetts, is a good textbook, well-written and with plenty of examples. ■

Figure 2

```
PROGRAM pterm; {$A-,B-}
{ A Simple Terminal Program in Pascal 10/84 }
{ Hit the | key -ASCII 124- to end program. }
{ This is vertical bar key }
VAR
  Instat,c1,c2,indat,Condat : byte;
  Outnum, R : integer;
  Alldone, Infromhost : Boolean;
  Inchar : char;
PROCEDURE readports;
BEGIN
  REPEAT
    BEGIN
      Alldone := True;
      Instat := Port[255];
      c1 := Instat and 255;
      c2 := Instat and 253;
      Infromhost := c1 - c2 = 2;
      IF Infromhost THEN {char recieved from host}
        BEGIN
          Indat := PORT[254];
          Inchar := chr(Indat);
          Write(Inchar);
        END;
      IF KeyPressed THEN {key pressed on console}
        BEGIN
          Condat := Port[252];
          Outnum := Condat;
          CASE Outnum OF
            ( | key hit to end )
              124 : Alldone := False;
              { | at even parity }
              252 : Alldone := False;
            ELSE
              PORT[254] := Outnum;
            END;
          END;
        UNTIL Alldone = false;
      END;
    BEGIN {main}
      readports;
    END. {main}
```

Press <RETURN> to continue

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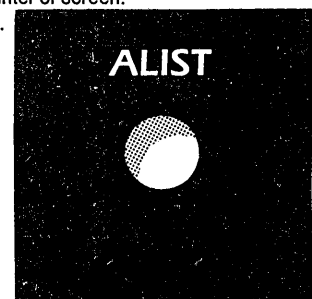
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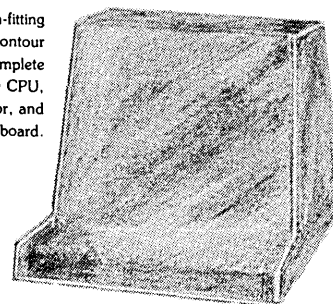
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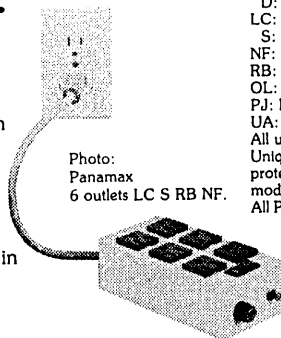


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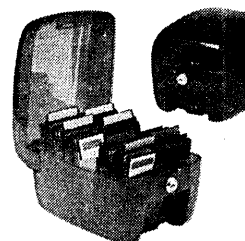
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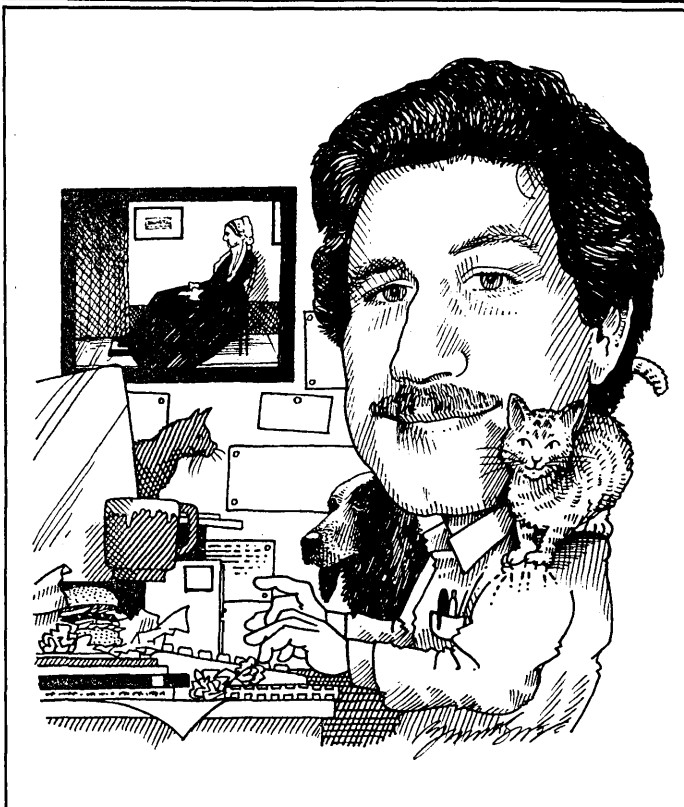
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INSIGHT

by Art Zemon

PAYING BILLS WITH PERSONAL PEARL

[This column is a tutorial meant especially for beginners to teach you how to use the software that comes bundled with your Morrow.]

LogiCalc Leftovers

Before discussing Personal Pearl, I want to clear up a couple of common misconceptions about LogiCalc. Following my last two pieces on using LogiCalc for spreadsheet calculators, I received a number of letters asking, "If I run LogiCalc from drive A, how can I save files on drive B?" The answer is simple but does not appear anywhere in the user's manual. To save a file on drive B, type a file name which begins with "B:". For example, to save your spreadsheet in file "BUDGET" on drive B, type:

B:BUDGET

when the ";S" command asks you for the file name.

Many of you also misunderstood exactly what the ";D" command does. It deletes cells from memory; it

does not delete files from the disk. To delete files from the disk, you must use the "ERA" command at the CP/M prompt ("A>" or "B>").

Personal Pearl--Not Perfect but Still Useful

Although Personal Pearl is not as powerful as dBASE II and the other relational data-base management systems (DBMS's) on the market, it can still be quite useful. In this article, I will describe how I use Pearl to organize my bills. In the process, I hope to assuage any fear you may have had about using Pearl for yourself. Next time I will expand this system so that it will actually write the checks on commercial check forms.

For those already familiar with DBMS's: Personal Pearl is closest to a relational DBMS but is not as flexible. Designing a Pearl form is the data definition phase. Pearl does not support ad hoc queries; reports are the only means of extracting data from a form. There is no programming interface to Pearl. Pearl does not allow you to create new relations from existing ones.

Nomenclature

Personal Pearl can best be described as a list management system. It will let you save lists of things (e. g., bills and creditors) in disk files and print reports based on the contents of the lists. The lists can be called databases.

You do not program Pearl in the normal sense of the word. Instead, you create forms. A Pearl form looks just like any other form in the world (blanks to fill in, etc.) but it also serves to define the data which comprises a database. The form has blank spaces to be filled in which are called "fields." The length of a field determines how many characters of data may be stored in that field. The type of a field determines what may be stored in that field.

To get information out of Pearl, you create reports. A Pearl report looks like a form when you create it. The difference is that a form is filled in by you while a report is filled in by Pearl.

The beauty of Personal Pearl is that you only do the hard things once (designing forms and reports). After that, you just fill in blanks on the screen and let Pearl do the hard work.

Before You Try My Examples...

Before you can do any of the things in this article, you must have installed Personal Pearl. (Follow the main menu to do this; space constraints prevent me from describing it here.) If you have already disabled the menu system, just create a new CP/M disk from your distribution disk and boot that. It should come up with the menu.

After installing Pearl, work through the "Easy Tutorial--Address Book" in Chapter Three of the Manual.

This will teach you the basics of creating forms and reports and entering data. For this article, you can skip section five of that chapter, "Customizing."

Overview of a Bill Paying System

I pay bills with a three part system. Each part performs a small set of functions as described below:

CREDITR form

This database contains the names, addresses and account numbers of all the people to whom I owe money. By referencing it from the BILL form, I "validate" my data entry; i. e., the BILL form will only accept bills for known creditors.

BILL form

This database contains all the bills which I have not paid. For each bill, the database contains the creditor's name (validated by the CREDITR form), the amount due, and the due date.

MONTHLY report

When I run this report, Pearl prints a subset of the BILL database. I restrict the MONTHLY report to only those bills with due dates up to a certain date. I use this to see which bills are due.

CREDITR Form

Start by creating the following CREDITR form. You can vary the field lengths to suit yourself. The ones I give look nice on my screen. Be sure to provide labels on the screen for each field.

<u>Name</u>	<u>Width</u>	<u>Type</u>	<u>Description</u>
CNAME	42	C	REQUIRED DATA Creditor's name.
CREDID	44	C	REQUIRED DATA UNIQUE INDEX Uniquely identifies each bill I expect to get. A single CNAME may appear under more than one CREDID. This lets me keep, for example, insurance payments for my MG separated from those for my Charger.
CACCT	41	C	REQUIRED DATA The account number.

Note: my CREDITR form also contains fields for the creditor's address. You may wish to include these or other fields.

BILL Form

Now enter the following BILL form. Note that you cannot install this form until you have installed CREDITR because BILL references CREDITR.

<u>Name</u>	<u>Width</u>	<u>Type</u>	<u>Description</u>
CREDID	44	C	REQUIRED DATA NON UNIQUE INDEX

<CREDITR> ACCESS KEY

This only allows bills from "known" creditors.

TOPAY 9 N Enter this field on the form as "\$9,999.99" so that you will have a dollar sign and comma displayed as necessary and will have two positions behind the decimal point.

DUE DATE 8 D REQUIRED DATA
This is the date on which the bill is due.

MONTHLY Report

Finally, create the MONTHLY report under the BILL form as a list type report. This allows Pearl to total the amounts to be paid. In the heading section of the report, place column headings which will look nice on the page. There should be no data fields within the heading section of the report.

In the detail section of the report, place the following three fields. They should all be on one line.

CREDID<CREDITR> ACCESS KEY. 44 characters wide.

DUE DATE 8 characters wide.

TOPAY 9 characters wide. Enter as "99,999.99".

In the totals section of the report, place the following field, with appropriate label:

TOTAL 9 characters wide. Enter as "99,999.99".
The computation for this field is "TOPAY + TOTAL".

Finally, sort the report on DUE DATE. This will place the bills due soonest at the top of the page when you print a report.

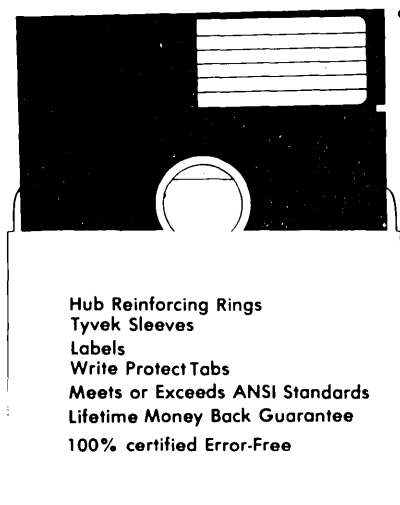
Using this Bill Paying System

To use this system, start by entering all of your creditors into the CREDITR form. Include your credit card companies, your mortgage or landlord, insurance company, etc. Don't worry about missing some. You can always add more later.

Next, enter any periodic bills into the BILL form. Set the due date for when you want each payment to reach the creditor. For example, you might enter all your car payments for the year. Each one would have a different due date so the MONTHLY report would remind you to pay them at the right times.

As other bills arrive in the mail, enter them into the BILL form. Again, assign each a due date which coincides with the date the creditor should receive the check.

Run the MONTHLY report when you want to pay bills. If you pay bills on the first of each month, you should
(continued on p. 33)



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(continued from p. 31)

request a report of all bills due through the sixth of the next month. (The extra five days allow time for the US Mail.)

Finally, after paying each bill, delete it from the BILL database. By doing so, you prevent the database from growing bigger throughout the year.

Confused?

I realize this has been a bit concise. (Unfortunately, the "real world" imposes size constraints on our magazine.) If you have questions, please write to me. (4743 Matney Ave., Long Beach, CA 90807; MCI: AZEMON; CompuServe: 72406,3275) I will try my best to answer them. If you send me an SASE with 37 cents on it, I will send you complete listings of both forms and the MONTHLY report. If you send me a floppy disk, I will return it with the Pearl databases already set up. [Wow! --Ed.] ■

HOT TIP

When working with the Micro Decision with the cover off, beware of possible interference from nearby equipment, causing your disk drives to perform erratically.

--Ray Andrews, Vincennes, IN

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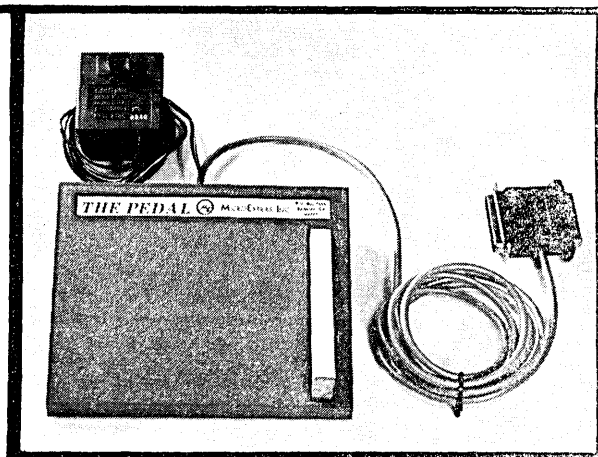
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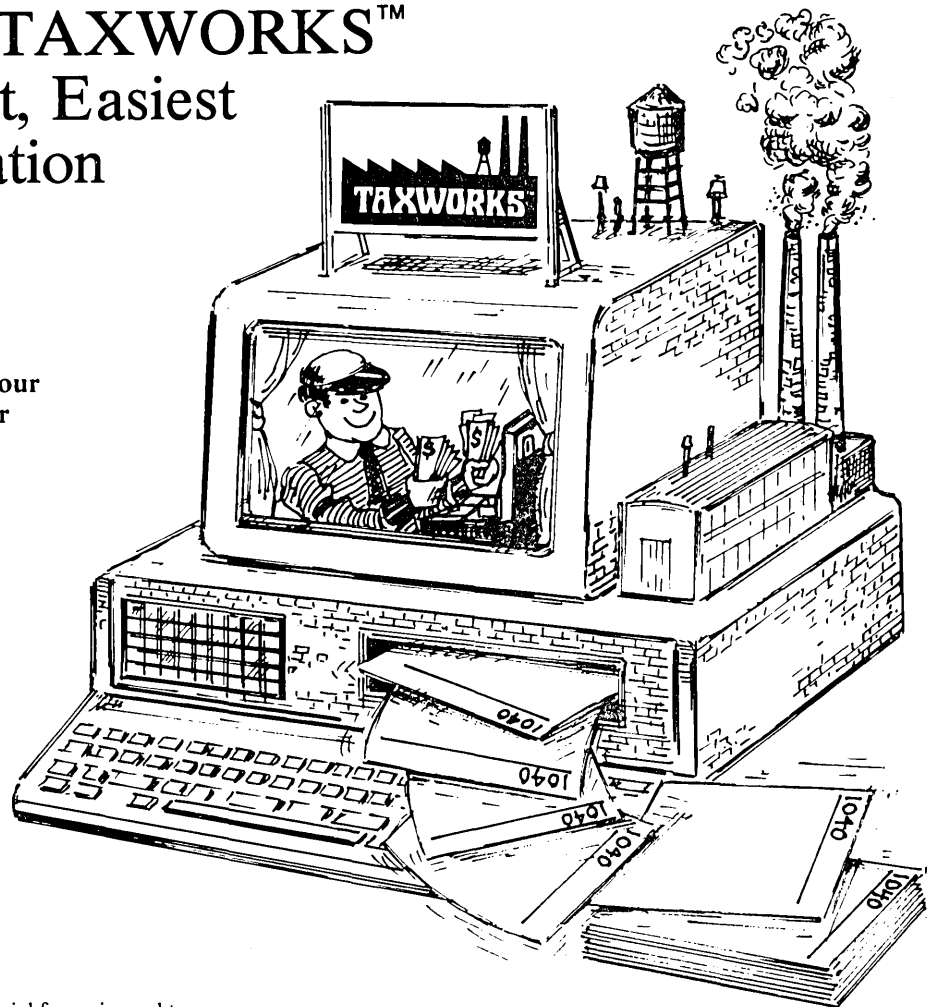
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PRELIMINARY RESPONSE TO THE SIG SURVEY

by Stan Young

It looks indeed like we may be able to start our own Morrow Special Interest Group (SIG) on CompuServe. At this early date, we've already had over 100 responses to the questionnaire accompanying my proposal in the last issue of MOR (Vol. I, # 5, December 1984). That's 10% of what we need to make this work. I thought you might be interested in seeing some of the comments received so far. Most of them were from the West Coast, since they get their copies a lot earlier than those on the East Coast.

RM of California writes: "I would rather participate in a SIG than attend a group meeting, and I believe people would learn more with the SIG."

RW, also from California, writes: "I am a brand new Morrow owner. My telecommunications is not even up and running yet. I need all the help I can get."

Another RW, this time from Washington, writes: "We have just started a user group and will start another one soon (branch of first one). SIG will help a lot."

GW of California, writes: "I'm going to hand out copies of this at my users group--OK?" ## It sure is!

BP of California comments: "Good idea, Stan. Let me know if I can help." ## Believe me, I will.

AG of California writes: "What we need are some good instructions on downloading with MDM730. I have doc but it doesn't help me too much when I'm 'on-line'." ## Take a look at MEX112, AG. One of the nice things about it is the online help facility. And the price is right--it's free!

TS of California says: "I'd love to see this happen, Stan. My own experience from users groups is that Morrow owners seem to be pretty computer-naïve compared to, say, Kaypro owners, so that it will be important to get together as many technically-inclined people as possible to answer questions on the SIG."

But DF of Oregon wonders: "Would people who are new to the computer game be 'brushed aside' during the conferences because of their lack of knowledge?" ## Based on my experience, DF, the members on the conferences usually welcome new folks. A lot of the new "faces" feel a little out of place at first, but they get over that very quickly. And the "old hands" are usually ready to answer questions and give advice.

FP of California has an interesting idea. He wonders if a SIG could be demonstrated at a users group

meeting? Why not check with the folks at your local users group?

PH of California wrote: "My reason for using a SIG would be the reference section. Hopefully, Morrow would allow you to upload as much information as possible." ## I hope so, too.

JO of Washington says: "We are still in the novice stage in many areas, some programs give a lot more problems than we know what to do with as yet." ## As you might imagine, she is looking forward to a SIG.

CR of Ohio wrote: "I use my MD3 in a very small business. I don't have time to search out solutions to computer problems. Need an easy way to talk with others who have solved the problem."

CB of Massachusetts writes: "Would be very interested in detailed info from Morrow. Would love to talk to/share info, public domain (MD modified) software with others."

KF of Washington writes: "Great idea! It's time has come. On the issue of users group meetings, when you have 100 (or more) people in a room, there really is no way to exchange info amongst all of them in 1-2 hours."

W of Montana sent his response using Compuserve's electronic mail facility. He writes: "...an obvious advantage of Compuserve is the fact that you can get through! I call the BAMDUA number in Berkeley now and then and, while it's a nice board, I seldom get through. What is the value of a BBS if you can't get on?" He also says: "I'd sure use a Morrow SIG!!!"

NE of California wants "...an on-line index of 'help'-type articles from various SIG newsletters and other sources." ## Sounds like a good idea to me!

AN of Hawaii wasn't too keen on the idea. He writes: "For all practical purposes, access by telephone from Hawaii to the mainland is unrealistic." ## Actually, it's not as bad as you might think, AN. As a matter of fact, the publisher of one of the most popular newsletters on Compuserve lives in Hawaii, and he puts his material online there using one of the computer networks. So a SIG may not be out of your reach--even across half the Pacific ocean.

What do YOU think? Send in the survey form that appeared in the December issue. Your voice counts! ■

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SMARTKEY ALERT!

by Ted Silveira

I'd like to add a few notes to my article, "Notes from a SmartKey User," published in the December 1984 Morrow Owners' Review (Vol. I, #5, p.25).

First, there's a typo (my fault, not MOR's). The line that reads:

```
-f1113,113c,00 <CR>      [type "f113,113c,00"]
```

should read:

```
-f1113,113c,00 <CR>      [type "f1113,113c,00"]
```

It's a small difference, but it would cause major trouble for someone who followed the wrong set of numbers. Thanks to Arthur Bloch for pointing out the error to me. (For those who are interested, the patch I describe simply wipes out a routine in SmartKey that seems to be calling the Morrow ROM and checking an ID.)

Second, I found that when I was using SmartKey and WordStar together on a large text file, stray characters occasionally appeared on the screen. I reinstalled WordStar from scratch, with SmartKey already loaded into memory, and have had no problems since then. I hear of other people using the combination of SmartKey-WordStar-Morrow without ever having this problem, so maybe the whole thing is just a figment of my imagination.

Third, I also found that interrupting a command run from the WordStar NO-FILE menu (with ^U and ESC) wipes out the SmartKey definition table for some reason--SmartKey remains in memory, but all keys lose their special definitions. Interrupting a command while actually editing a file doesn't seem to bother SmartKey at all. I don't know if this is true of all versions of SmartKey or just the patched version that I use.

I've become a dedicated SmartKey-WordStar user. With single keystrokes, I can now jump to the beginning or end of a sentence or paragraph, jump to the beginning of a paragraph and reform it, delete a sentence, delete the word to the left of the cursor, mark a sentence or a paragraph as a block, or do a save-and-resume (^KS^QP). I love it.

One last note. Though I helped (a little) with the work Brian Leyton did to get ZCPR3 installed on the Morrow, I didn't, as far as I can remember, write the article in the December MOR titled "ZCPR3 Makes CP/M 2.2 Shine." Someone else deserves the credit.

[NOTE: Ted Silveira and others have called to our attention that there is a lot of confusion around the issue of distribution of SmartKey to Morrow owners. Reid Griffin of Software Research Technologies, the publishers of SmartKey, has clarified this issue for us in a phone conversation by saying that there is no arrangement with Morrow to purchase SmartKey for purposes of resale to Morrow customers, nor is there any blanket giveaway of the program. Morrow now bundles SmartKey with new Morrows. The contract between Morrow and SRT pertained only to those who purchased their Micro Decisions with an MDT 60 or 70 terminal during a certain period of 1984. The version of SmartKey which Morrow bundles does not work on the MD11. Owners of the MD11 can purchase from SRT a version that does work on their machine. --Ed.] ■

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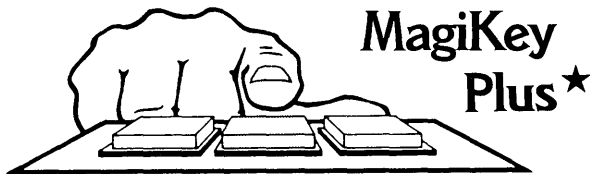
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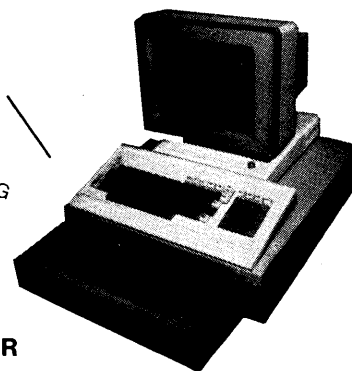
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